DIAGRAM SHOWING THE RELATIVE RAINFALL IN 1866 AT SELECTED STATIONS.—For Explanation, see page 60.

Inches
50
100
150
200
250 Inches
224 The Stye
179 Seathwaite
145 : : Upper Glencroe
131 Stonethwaite : : Ardlui
129 : : Glen Fyne
128 : Snowdon
125 Stye Head.
115 : Rhiw Bryfdir : Camusinas
114 : Beddgelert
110 : : Stuckgown, Firkin
109 : : Bridge of Orchy
108 Mosedale : : Arrochar.
107
106
105
104
103 Wastdale Head
102 Patterdale
101
100 Lesketh How : : Ben Lomond, Cairndow
99 The How
98 : : Kyleakin
97 Coniston : : Portree
96 Grasmere : : Luss, Loch Dhu
95 Dartmoor
94 Monk Coniston, Ambleside : : Corran
93
92 : : Waternish
91 Esk House
90 Brant Rigg : : Ledard, Loch Katrine
89 : : Arddaroch
88
87
86 : : Tarbert
85 : Festiniog : : Millfoot
84
83 : : Fort William
82
81
80
79 Great End : Llanberis : Hynish
78 Troutbeck : : Raasay, Fort Augustus
77 Buxton, Windermere : : Inverary
76 Arncliffe
75 : : Aberfoyle
74 : Bettws-y-coed : Paisley, Greenock, Kintail
73 Rochdale : : Kilmory, Loch Drunkie
72 Launceston
71 Sedbergh, Keswick : : Bridge of Turk
70 : Brynderwyn, Dolgelly : Oronsay, Glen Strathfarrer
69 Standedge, Scawfell : : Clunes
68 Calstock, Hallstead
67 Woodhead : : Wanloch Head
66 Watermillock
65 Stonyhurst : Bala : Castle Toward
64 Whinfell : : Islay, Loch Vennachar, Applecross
63 Bassenthwaite
62 Kirkby Lonsdale : Brithdin : New Galloway : Letterkenny
61 Chagford, Bacup, Kendal : Abercarn : Bernera
60 Plympton, Bolton-le-Moors : Trawsfynydd : Blair, Bunessan
59 Ulverston, Blackburn : Merthyr Tydvil, Llanidloes, Penrhyn
58 Liskeard · Blaina
57 Allenheads
56 Bideford, Bodmin : : Girvan, New Cumnock, Muthill
55 Tavistock, Bellingham : Haverfordwest : Largs ; Valentia
54 St. Austell, Saddleworth ; : Lismore : Killarney
53 Chapel-en-le-Frith, Skipton : : : Innishambo
52 Hulker, Bootle, Tarnbank ; Rhayader : : Killaloe, Galway, Florence Court
51 Bradford, Cockermouth : Carmarthen, Lampeter, Port Madoc : Dalbeattie, Douglas Castle
50 Penzance, Redruth, Truro, Preston, Lancaster : Llangybie : Stranraer, Deanston
49 Plymouth, Wadebridge ; Cardiff
48 Tiverton, St. Agnes, Mells, Oldham : Aberystwith, Corwen : Wigton, House of Tongue
47 Ilkley, Kirkby Stephen : Bodfaen : Dollar, Laggan, Scourie
46 Great Strickland : Aberdaron
45 Petersfield, Gt. Torrington, Huddersfield, Brougham, Tintern : Beaumaris : Stornoway
44 Teignmouth, Helston, Manchester, Chepstow : : Cumbrae, Glasgow : Ennis, Moynalty
43 Shaftesbury, Barnstaple ; Pembroke, Carnarvon : Annan, Stirling ; Cork, Londonderry
42 Stony Middleton ; : Aberfeldy : Sligo, Garvagh
41 Torquay, Oswestry, Macclesfield, Braystones : Tenby, Llanystumdwy
40 Dorchester, Cullompton, Blackpool, Workington : Guernsey : Dumfries, Ardross
39 Edenbridge, Dawlish, Harrogate, Appleby : Abergavenny, Presteign : Roscommon, Belfast
38 Winchester, Marlborough, Sidmouth, Bath, Cirencester, Sheffield, Otley : Logierait : Fermoy
37 Dover, Cranbrook, Tunbridge, Devizes, Blandford, Exeter : Hay ; Turriff, Bressay : Waterford
36 Dorking, Petworth, Ryde, Chesterfield : Chirk, Jersey ; Lanark, Perth, Hoy
35 Southampton, Bridport, Liverpool, Leeds, Ripon : Wrexham, Pwellheli : Galashiels ; Courtown
34 Brighton, Calne, Loughborough, Morpeth : Denbigh, Alderney : Hawick, Braemar ; Armagh
33 Horsham, Hythe, Maidstone, Salisbury, Barnsley : Kippenross, Brechin : Antrim, Parsonstown
32 Canterbury, Chichester, Hastings, Swindon, Birmingham : Sark : Aberdeen : Wexford, Roscrea
31 London, Guildford, Oxford, Ipswich, Cheltenham, Scarborough : Conway : New Ross, Carlow
30 Windsor, Epping, Rugby, Leicester, Nottingham, Alnwick : Hawarden : Dunse, Dunfermline
29 Northampton, Worcester, Malvern, Whitby : : Dundee, Dingwall
28 Margate, Hitchin, Norwich, Gloucester, Coventry, Redcar, Filey : Rhyl : Inverness : Dublin
27 Weybridge, Rochford, Lowestoft, Lincoln, Hull, Sunderland, Silloth : : Kelso, Edinburgh, Burnt Is.
26 Royston, Wistow, Wellingborough, Boston, Gainsborough, York : : Drem, Arbroath, Invergordon
25 St. Neots, Peterborough : : Haddington, Montrose
24 Baldock, Witham
23 Sutton Park, Cambridge, Grantham : : Fearn
22 Ely
Inches
50
100
150
200
250 Inches

DIAGRAM SHOWING THE RELATIVE RAINFALL IN 1866 AT SELECTED STATIONS.—For Explanation, see page 60.

BRITISH RAINFALL, 1866.

ON

THE DISTRIBUTION OF RAIN

OVER THE

BRITISH ISLES,

DURING THE YEAR

1866,

AS OBSERVED AT ABOVE 1000 STATIONS IN GREAT BRITAIN AND IRELAND,

WITH REMARKS ON VARIOUS EXPERIMENTS, AND ILLUSTRATIONS.

COMPILED BY

G. J. SYMONS, F.M.S.,

Member of the Scottish Meteorological Society.

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1867.

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BRITISH RAINFALL.

"If a preface is to be read it must be brief;" therefore, writing as I do after finishing the following seventh annual statement of *British Rainfall* (no light task), and desiring not to write in vain, I make it as short as possible.

Briefly, then, I thank most heartily the contributors of observations and of funds, and regret the non-arrival, even to this day, of Mr. Bates' report, and of about a hundred returns from various parts of the kingdom.

It would be wrong, however, longer to delay the publication, and therefore those returns which are not herein given must be inserted in the *Meteorological Magazine* as they arrive.

Here also I may apologetically remark that the influx of letters and returns at this period of the year is such that individually to answer them is an impossibility; a goodly basketful await attention and shall receive it as soon as possible.

Lastly, if any one who reads this page is fond of calculation, has leisure time, is willing to devote a portion of it to rainfall investigations, and offers assistance, it will be most thankfully received.

G. J. SYMONS.

February 16*th*, 1867.

REPORT.

As Rainfall work makes yearly more *real* progress, there is (perhaps consequently) less *apparent* progress to note. Various points on which there had previously been no uniformity are brought forward, discussed, settled, and adopted, and thereby passing into (all but) universal adoption, no longer require special notice. Such, for instance, as the question of *what constitutes a rainy day?* settled by adopting as days with rain those having not less than 0·01 in. of rain; and again, the question involved in the expression, "*date of entry of rainfall, and close of rain month*," settled by the general adoption of the recommendation "that 9 a.m. be adopted as the hour of measurement, and that the fall then measured be placed against the day preceding that on which it is measured." I cannot class among completed questions "*Collection of Old Observations.*" This is a matter always taken in hand when I can get a little leisure, but unless adequate funds be provided to keep one person steadily at work at the British Museum, there seems little hope of completing the collection. This, and the discussion of the experimental observations subsequently referred to (page 25) are the two pieces of work it seems most necessary to press forward, and which it would rejoice me most to see progressing to completion. I especially desire to gather the old observations (which others are constantly burning), because I wish to be able to publish some of the stores of information which are at present, not dormant on my shelves but, accessible only by the slow process of manuscript copying. Yet few things would be more mortifying than to find when the tables for any county were printed, that important sets of observations were omitted. Doubtless some omissions are unavoidable, and an appendix inevitable, but the more perfect the original tables the better in every respect. Of course the foregoing remarks do not refer to the present annual publication, but to one (as yet in embryo) wherein I propose, if adequately supported,

to give the monthly fall at every station in each county (separately), with as full a description as possible of the kind of rain gauge, its position, the locality, &c., *noticing every record ever kept in the country;* but perhaps I need not lament the incompleteness of my collection, for the cost of printing this large work (at least £200 or £300) will prevent its being attempted for many years to come, unless fresh sources are found to supply the funds.

The Examination of Gauges has been pressed on as time and opportunity offered, and more than 200 have now been visited and tested. The full particulars of a first portion of this work are now in the press, forming part of my Rainfall Report presented to the British Association at the Nottingham meeting, where also £50 was granted towards the expenses of this work. In the spring of 1866 I visited and examined about 50 gauges in Kent and Sussex—in fact almost every one in Kent, and most of those in East Sussex—and in the autumn those in parts of Yorkshire, Lancashire, Cumberland, and Westmoreland. The measurements then taken are in process of reduction.

Wider and lengthened experience confirms my original opinion, that with few exceptions gauges are sent out by respectable opticians correctly constructed, and that if properly placed and attended to serious errors would not exist, but that where they are originally made by amateurs, or patched up by country tinmen, the result is usually what might be expected. I make honourable exception as regards gauges made by Mr. Marshall, of Kendal, which, as regards careful graduation, would put to shame some of our much vaunted London opticians. The main source of error is position. Observers choose an open site for their rain gauges when first they commence, and think nothing of the little apple tree 6 ft. high and 10 or 15 ft. off, and seeing it daily *they* do not realise its ceaseless growth, or note its overshadowing the gauge; and when I call to see whether the gauge is correct and correctly placed, and directing their attention to its influence, insist on the removal of either the tree or the gauge, they are at first loth to recognize the necessity of the course, though it is only just to acknowledge their almost universal eventual resolve to do whatever is necessary. I mention this at length, because it is impossible to visit all the stations in a year, or even in several years, and if observers will look *they* can see the bushes and trees as well as any one else. As an instance of the effect of continual tinkering, it may be mentioned that the old float gauge at Brougham Hall has been so stretched by repeated frosts and subsequent patchings that it registered *nearly* 30 *per cent. too little*, as has been proved not only by measuring it, but also by putting up a new one as a check.

Instruments and Experiments formed the subject of a paragraph in last year's report, and a few words must again be devoted to it. On a subsequent page will be found particulars in some detail of the results obtained in certain branches of experimental rainfall by the various persons therein mentioned.

The Self-Registering Gauge mentioned last year has been completed, but not sufficiently long for me to speak decidedly and safely as to its uniform and permanently correct action.

The Ebonite Gauge, constructed in 1863, is as perfectly unchanged in surface as when first supplied. In order that the trial of the material should be absolutely unexceptional, Mr. Silver kindly supplied a fresh one, identical in size and shape with various other gauges I had previously procured, and it is now, with all the others, in the charge of Mr. Crallan.

Turf Gauges, or gauges whose funnels are filled with earth, and a sod as the collecting surface, have been used during the year by Colonel Ward and myself. Mine broke down, but at both stations the results confirm the statement last year, that the amount *caught* is nearly the same as that caught in an ordinary funnel, and that all percolates through the turf and cinders, when they are saturated to begin with; but that in all other cases a very large proportion is evaporated, and that in the summer months there is seldom any water remaining at the end of the month.

Results of Turf Gauge read daily at Calne in 1866.

1866	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
Turf	5·834	4·053	1·443	·889	·179	·685	·058	·634	5·646	1·804	2·359	3·112	26·696
Isol.	4·240	4·340	2·167	2·282	1·185	3·056	1·488	2·476	6·866	2·198	2·482	3·141	35·924

Isolated Sunk Gauge.—The result of the continued working of this gauge, is to maintain the result indicated by the nine months' observations in 1865—viz., that the amount caught by a gauge with its mouth level with the ground, but with a space excavated all round it sufficient to render insplashing impossible, is almost identical with that collected by a gauge whose mouth is 2 inches above the ground.

Influence of River Mists on the Amount of Rain Collected.

STATIONS ...	Shepperton Weir.	Weybridge Village.	Bartrops, Weybridge Heath.	Sheerness Water Works.	Nore Light Ship.	Shoebury-ness.
Position of Gauge.	On top of a guard pile, (*i.e.* a post driven into the bed of the river.)	In garden of Rev. Dr. Spier's residence.	In garden of Mr. Harrison's residence.	In the yard of the Water Works; nothing between it and the sea, which is distant.	Fastened on the deck, above which its receiving surface is 2 ft. 5 in.	
Height above gd.	6 ft. 0 in.	0 ft. 6 in.	0 ft. 6 in.	1 ft. 0 in.	2 ft. 5 in.	4 ft.
„ „ sea l.	42 ft.	53 ft.	150 ft.	9 ft.	7 ft.	12 ft.
January	2·350	3·265	3·747	3·26	·89	2·41
February.....	2·945	4·115	4·406	3·40	2·55	3·03
March	1·265	1·590	1·627	2·10	1·20	1·36
April	1·880	2·067	2·095	2·50	2·56	3·42
May.....	1·205	1·598	1·502	1·18	·86	·89
June.....	3·045	2·927	3·140	2·55	1·88	1·87
July.....	1·135	1·153	1·040	2·80	1·38	1·45
August	1·840	2·232	2·283	3·06	2·95	3·12
September ...	2·905	3·573	3·615	3·53	2·33	3·21
October	1·080	1·172	1·132	1·05	·48	·49
November ...	1·315	1·548	1·475	1·38	1·09	1·41
December ..	1·350	1·905	1·903	1·28	1·22	1·15
Totals	22·315	27·145	27·965	28·09	19·39	23·81

The results hitherto obtained, and which are shown in the preceding table, cannot, I think, be regarded as satisfactory, yet it is not easy to suggest improvements. There is considerable difficulty in so arranging a gauge that it shall be quite in the middle of the river, so mounted that a flood in the river will not flow into it, and yet not be so exposed to the sweep of the wind as to have its indications thereby vitiated. The site selected for experiments at Shepperton Weir seemed both to Mr. Cumming (whose loss we all regret) and myself, well adapted for testing the measurability of river mists; but the result shows that the effect of the exposed position is so great as utterly to mask any increase there may be from the mist. I cannot put the gauge on the adjacent island, because there are many trees in the only part that is not frequently under water.

At the Nore Light Ship there is also considerably less than at the shore stations on either bank of the river, probably from the same cause as at Shepperton. It does not seem that the continuous motion to which the light ship is of course liable should produce serious effects, because the gauge would be tilted almost equally towards, and from, the point whence the rain fell. I feel rather beaten by these difficulties, and do not see how to solve the original proposition of determining the influence of river mists on the amount of rain

collected, unless it be by transferring the Shepperton gauges to some flat dry district, tolerably uniform in its level, with a large piece of ornamental water, and then the gauge might either be placed on an island, if free from trees, or float, moored in the centre of a pond or lake. If any observer can offer these conditions, I shall gladly place the instruments at his service, as the expediency of continuing them in their present state seems doubtful.

Rain Gauges in Derbyshire.—Although Chatsworth was early provided with a rain gauge, and its register is among the longest extant (1761 to 1813), yet of late years there has been an utter absence of good observations either from Chatsworth or the very interesting neighbourhood. I am thankful to say that, through the kind assistance of the Hon. and Rev. O. W. Forester, and Mr. Davis, of Derby, several instruments have been started in that neighbourhood. At Castleton I have hitherto tried in vain to get a register kept; I shall be glad to hear from any one who can enable me to do so.

Rainfall in the Lake District.—I have long felt the desirability of examining with care the rainfall of the large mountain tract lying round the district of which the particulars are so well known through the researches of Dr. Miller and Mr. Fletcher. Are the falls they have proved to exist in the vicinity of Scawfell unique?—or are they also to be found, or nearly approached, throughout that desolately-beautiful region? In order to settle these points, a number of gauges were planted last year (by Mr. Balme, of Grasmere and myself,) southward in the Langdales, northward as far as Skiddaw, and eastward right away to Shap, thus joining on to the existing stations at Lowther and Great Strickland. In the next yearly tables this subject will be treated in full detail and with safety, because we have in all parts of the district gauges which have been regularly observed for many years, and which being still continued, enable us to use them as standards of comparison and reference for those recently placed in their neighbourhoods. Another somewhat important step may be incidentally noticed—viz., the institution of *daily* thermometrical and hygrometrical observations on a jutting rock, 1550 feet above the sea, on a spur of the Helvellyn range, which I hope to be able to compare with those made at Patterdale Hall by the direction of W. Marshall, Esq., M.P.

In concluding this report, it may be noticed that nothing is said on the important question of finance; this I have thought it better to place at the end of the volume, with the list of contributors to the expenses of the work, which now takes all my time, and much of that of others.

NOTES ON THE RAINFALL AMONG THE CUMBERLAND MOUNTAINS FOR THE YEAR 1866.

By Isaac Fletcher, Esq., F.R.S.

Adopting the celebrated rain station Seathwaite (invariably pronounced *Seawaite* in the locality) as a standard, the year 1866 is the wettest since the establishment of a gauge there in 1844, with the single exception of 1861 when 182·58 inches were measured. The past year has been so remarkable in respect of rain, that I must ask for a small space in order to give the monthly totals at seven stations where upwards of 100 inches fell.

STATION.	Wasdale Head.	Mosedale.	Stone-thwaite.	Stye Head Tarn.	Sprinkling Tarn.	Sea-thwaite.	The Stye.
Feet above Sea	247	624	330	1472	1985	422	1077
January	12·93	9·12	19·09	17·11	16·80	25·99	34·12
February.....	7·14	7·14	14·54	Frozen	Frozen	19·17	16·20
March	8·15	6·88	7·92	20·65	18·45	13·05	18·39
April	3·31	3·25	4·84	4·12	3·58	5·97	5·90
May.....	2·27	4·08	3·40	4·58	5·95	5·06	6·80
June	5·38	5·00	5·70	7·15	8·11	6·57	8·25
July.....	8·17	7·21	5·60	10·11	10·22	11·18	14·98
August	10·15	10·36	10·86	12·50	14·32	12·69	17·30
September....	11·44	13·86	17·83	17·44	19·80	21·35	22·62
October	5·64	6·92	7·69	7·25	8·53	9·62	15·21
November.. ..	15·60	18·80	14·04	17·27	17·27	23·08	32·65
December.....	12·40	15·45	19·60	16·88	16·44	25·39	32·14
Total	102·58	108·07	131·11	135·06	139·47	179·12	224·56

I believe so large an annual fall as is above recorded on the "Stye," has never before been measured in Europe, and can only be paralleled or exceeded in tropical climates. As most meteorologists are aware, the late Dr. Miller of Whitehaven had a gauge at this station for four years, during which period he obtained, as compared with the neighbouring hamlet of Seathwaite, the following results :—

Year.	Seathwaite. inches.	The Stye. inches.
1850	143·96	189·49
1851	139·60	169·62
1852	156·74	167·73
1853	113·69	124·91
Mean	138·50	162·94

This gives the mean ratio of the fall at the two stations, as 1 to 1·176, but it will be observed that it is of a very fluctuating character, that for 1850 being as high as 1·32, whilst 1853 is only 1·09. My observations for 1865 give 1·27, and those for the past year 1·25. It would appear as a general rule that the ratio is greater in wet than in dry years, and there is a sufficient general accordance between former and present results to establish the accuracy of the observations. I may mention that on January 1, 1867, I caused the Mosedale gauge to be removed from its site, and have planted it, also, on the Stye, nearly at the same level as the present gauge, but at the northern side of the Pass, near the head of the waterfall known as Taylor's Gill. Both gauges are at the Borrowdale end of Styehead Pass and near the edge of the precipitous declivity leading down into the valley. It will be observed that in January, November, and December, the fall on the Stye exceeded 30 inches, giving for those months an average daily fall of more than 1 inch! On October 29th, 6 inches fell at Seathwaite and on November 15th, 6·38 fell. I compute that on the latter date no less than 9 inches must have been received by the Stye gauge.

At the end of the year, the whole of the gauges at a higher elevation than Brant Rigg were found with their contents frozen into solid blocks of ice. The receivers were all brought down into the valley, and gradually thawed before a fire; a work of no small difficulty and danger from snow and intense frost. My assistant reports, in graphic language, "we had a very sore job of it, on account of the fells being covered thick with snow and ice."

I am happy to say that during the year no injury has occurred to any of the gauges, nor have I the smallest reason for suspecting that any of them have been tampered with. This is a satisfactory but by no means unnecessary announcement, for the fate of the original Stye gauge was thus described by an inhabitant of Borrowdale—"*Sum Lunnan chaps mashed in t'tunmill heed wi' girt steáns, an' than proddled t'boddom on't oot wi' their kebby sticks.*"

Tarnbank, Cumberland, Jan. 5, 1867.

DETECTION OF SEA SPRAY WHEN MINGLED WITH RAIN.

READERS of *British Rainfall*, 1864 and 1865, may remember that the above subject has been referred to more than once, and that in the latter it was stated that the matter had been placed in the hands of Dr. Mills.

It may be well, however, to recall for a few moments some facts indicative of reasons for some such observations being made. Perhaps the first that should be noticed is the ready means it affords of ascertaining exactly how much of the excessive rainfall on the western coasts is due to the addition of sea spray. We believe it to be generally small, but this is not always the case, for we have heard of the court-yard of a lighthouse 300 feet above sea level being so drenched with spray that it ran about in streams; clearly in such a case the contents of the rain gauge required careful examination. Let not any one, however, assume that herein lies the cause of any large portion of the excess of western over eastern stations. We shall be surprised if the spray (save in special cases) amounts to a fiftieth part of the total collected by the gauge, but surely its amount ought to be ascertained.

Again, the stunted growth of trees, and generally altered vegetation of the sea-side, is matter of common observation; how much of this is due to the increased force of the wind on meeting the first obstacle after its unbounded roam over the wide Atlantic, how much to the indirect action of the same wind by lashing the waves into mist-like spray and showering it upon the country for miles inland: how many miles, we know not, having hitherto had no better guide than the delicate little crystals of salt upon the windows, after a wild rainy night. We have seen windows three miles inland frosted like ground glass, and the detection of stray crystals 20 and 30 miles from the sea is frequent.* Again, medical men not unfrequently speak of sea-side air as being too strong for certain cases; does the gradual diminution of the amount of salt as we leave its source explain the popularity of certain inland and eastern coast watering places?

* Dr. Davy, F.R.S., says:—"I have been informed by a friend residing at Meltham Parsonage, and by another residing at Armitage Bridge, both places in the neighbourhood of Huddersfield, and about 80 miles from Scarborough and 60 miles from Liverpool (the nearest ports of the opposite coasts), that after the great storm of January, 1839, salt was observed deposited on the leaves of the trees at both places; they were about 4 miles apart."—*Trans. Roy. Soc. Edin.*

Possibly, and we think probably, the means now provided will solve these questions, and doubtless others not yet comtemplated: the requisites are a sufficient number of observers, care, and perseverance.

The entire necessary apparatus is as follows :—

1 Small beaker glass.
1 Stirring rod for do.
1 Stoppered bottle of solution of nitrate of silver.
1 ,, ,, ,, ,, ,, yellow chromate.
1 Pipette marked 10 (not graduated).
1 Burette (graduated in ten whole divisions and tenths) with compression clamp, point and india rubber connection.
1 Stand for burette
2 Books of blue test paper in bottle.

The whole of the above, properly labelled and packed in a case, can be supplied for £1 ; the solutions are calculated to last at least twelve-months; additional quantities will be supplied as needed for a few shillings. With the view of securing absolute uniformity, it is desired that all persons willing to co-operate in the matter, should forward the above sum to Mr. Symons, who will have the apparatus forwarded as soon as possible. It only remains to add the instructions, for which, as well as for all the arrangements, we are indebted to Dr. Mills.

INSTRUCTIONS.

Allow the rain water to stand until clear. Fill the pipette with some of the clear water and allow the contents gradually to drop out until the mark 10 is exactly reached. Let the remainder run into the glass beaker, and blow into it also the last drop which lingers in the point. Place the glass stirring-rod in the beaker; and add three drops of the yellow chromate solution.

The graduated burette having been made quite clean and dry, must now be placed in its stand and filled with the solution of nitrate of silver to the mark 10. [It will be necessary to make quite sure of the tightness of the compression clamp and caoutchouc tube; if these should exhibit a leak, they must be adjusted so as to prevent one.]

The beaker, with its contents, is next put under the burette, and solution of nitrate of silver made to fall into the liquid, drop by drop, by squeezing the two buttons of the compression-clamp. After each addition of three drops, the liquid is to be stirred; and this treatment is to be continued until a *pale red color* makes its appearance. Up to that stage only a milky turbidity will have been noticed. The number of whole divisions and tenths of nitrate of silver used are now read off and noted; they express the number of cubic inches of sea-water in 100 of rain.

The solution of silver remaining in the burette is returned to the bottle, and the burette *immediately* cleaned and set to dry.

N.B. If the water originally collected turns the blue paper (supplied) bright red, this process cannot be applied. A very *dusty* situation should be avoided for rain-gauges. If *distilled* water be at hand, the beaker may be advantageously half filled with it *before* commencing operations.

EDMUND J. MILLS, D.Sc., F.C.S.

OCEAN RAINFALL.

By Frederic Gaster, Esq., F.M.S.

In the month of June last I had the pleasure of laying before the Meteorological Society a Paper "On the Prevalence of Rain in the South Atlantic, North Atlantic, and a part of the North Pacific Oceans," and before proceeding further it will be well to notice briefly what was there undertaken, and what were some of the principal points noticed.

The "Storm and Rain Charts," published by Captain Maury, U.S.N., &c., &c., while Director of the National Observatory, Washington, U.S., contained the following particulars with respect to "Rain."

The surface of the ocean was supposed to be divided into a number of geographical districts, bounded by every fifth degree of latitude and longitude, and thence termed "squares," and from the log-books of vessels passing through those districts the number of eight-hourly periods during which the ship was in any particular square was extracted, and then the number of such periods when rain was the particular phenomenon of weather observed. Each eight-hourly period is termed an "observation," and by treating a large number of log-books in the manner described, a collection of "observations of all weathers," and "observations of rain," was obtained for each month in the year in each "square," and in that state published in the charts referred to.

Obviously great difficulty was experienced in endeavouring to compare the frequency of rain in one part of the ocean with that in another, from the fact that the *total* observations of all weathers made in one part exceeded in so many cases those made in another; *no two* squares, indeed, containing the same number of them. What was done, therefore, was to find what was the per-centage of rainy periods for the whole year, and to combine them in tables for reference. The S. Atlantic, N. Atlantic, and a part of the N. Pacific (all that were published by Maury), were treated in this manner, and a chart being ruled off into 5° squares as described, the "per-centage of rain" for each was inserted, and we thus had presented at a glance the prevalence of rain for each part on a uniform plan.

The principal features which were rendered apparent by this means were the following :—

1. That the precipitation of rain in the N. Atlantic exceeds very largely that in the South, the values being, for the latter 6·4 and for the former 10·9. 2. That the position of the equatorial calm belt coincided with the position of a belt in which the frequency of rain is very great, —from 14 to 19 per cent.* 3. That a general increase is observed in the frequency of rain in passing from the eastern towards the western shores of the oceans. 4. That in the S. Atlantic, between lat. 35° and 40° S., a remarkably uniform belt of about 6 per cent. of rain prevails from off the Cape of Good Hope to America. 5. The regions of the steady Trade Winds are marked by but little precipitation, while in the Temperate Zones it is frequent. South of lat. 30° S., however, there is a sensible diminution in the per-centages in those squares which are *close* in to the American shores, probably owing to the fact that the westerly winds of those districts have been drained of their moisture by the high lands of S. America. To the southward of Cape Horn, as in the Temperate Zone of the South Atlantic, there is a sudden and considerable increase observable.

But one point which attracted some attention was the comparative frequency of rain in the west. The accompanying tables were therefore drawn up, in which all the observations made in each zone of 15° of latitude have been reduced to per-centage values, so that the variations caused by want of more observations might be erased as much as possible, without at the same time destroying the effect of latitude.

Thus, if we take from the Equator to lat. 15° N., we include all the region affected by the equatorial calm belt in its annual march north and south; from 15° to 30° N. include the rest of the N.E. trade wind region, and being continued in a westerly direction takes in all those parts of the Caribbean Sea in which observations have been made; and the region between lat. 30° and 60° N. is divided into two parts, in the southern of which the north-easterly wind is perhaps more prevalent than in the other. So again in the South Atlantic : from 0° to 30° S. includes all the S.E. trade wind region, the whole of the zone 0° to 15° S. being usually in the actual trade wind, while from 15° to 30° is affected at its western extremity by more variable currents : from 30° to 45° S. may be considered as an "extra tropical" zone, while from 45° to 60° S. is the region of *prevalent* westerly winds.

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* This is over a belt from 10° to 12° wide, and the values appear less than might have been supposed, from the fact that the calm belt is generally not nearly so broad as this, but, owing to its motion north and south in following the sun in its declination, the "region of almost constant precipitation" has its effect somewhat smoothed down by taking the mean per-centage for the whole year.

Lastly, in the N. Pacific, we have 0° to 15° N. affected by the calm and rain belt of the equator; 15° to 30° N. in the N.E. trade wind; 30° to 45° S. as an extra tropical zone; and 45° to 60° S. a zone in which the observations are by *far* the greater part made in the summer months.

The per-centages in these 15° zones being given for each 5° of longitude, we see at once a marked increase in their value as we go westward in the trade wind regions, and it is traceable in other parts too,—until near their western extremities, the zones are affected by the influence of America, as before stated. This is particularly observable in the N. Atlantic if we cut out those parts in which all the 5° zones are not fairly represented, or where the observations are too few for the figures to be relied on. The cause of this *may* probably be in the greater intermingling of the polar and tropical air currents in those parts, or it *may* arise from other reasons—no opinion is here offered, the object at present being merely to give the facts. I may, however, state that the reduction in a similar manner of the observations of calm, thunder and lightning, and fog (which I have in hand) tends to show in each phenomenon this peculiarity of *increase* in *going westward*, at *least* so far as the S. Atlantic is concerned. This will be treated of more fully, however, when the N. Atlantic and N. Pacific observations are reduced and tabulated.

A question now presents itself as to the monthly variations in the values referred to. Unfortunately, the observations are in many cases too few to give reliable values for each square, and at *present* nothing has been done in that direction, though it is hoped shortly to be taken in hand. One cannot help seeing its utmost importance for a variety of reasons; and some regions having their regular wet and dry seasons, should be shown distinctly from those in which precipitation is pretty uniform all the year round; but first getting clearly before us the average distribution for the year, we shall be better able to deal with the monthly variations than we should have been had we taken them first.

A diagram in Maury's Sailing Directions, however, gives these variations for each of the *zones of* 5° *lat.* in the N. and S. Atlantic, and from that Table IV. has been formed. In it the oscillatory movement of the belts of rain are clearly shown, though had the observations been more numerous some of the minor inequalities in the amounts might have been erased. The high per-centages between lat. 55° and 60° S. are very noteworthy, but it is to be remarked that all the observations are made in the vicinity of Cape Horn.*

Undoubtedly, it would be far preferable could we collect statistics of

* *May* they not extend all round the world in these latitudes?

the amount in inches instead of the comparative frequency of the rain, but as this cannot at present be done, the less valuable figures should not be unused. Perhaps it would be well for some more notice to be taken by land observers of the hours (estimated or otherwise) of rain, as well as the depth, and thus at least *some* comparison might be made between land and ocean rainfall. I have no doubt for my own part that much might be done in this way, and would be willing to undertake the discussion and publication of results, provided, it in no way interfered with Mr. Symons in his work, or, should he not think of doing so.

The movements of the atmosphere and their effects cannot be discussed on too large a scale. The variations are so numerous that nothing which tends to throw light on them should be neglected, and the need of a more thorough understanding of them becomes every day more necessary. Beyond a few general laws but little is *known*, and one's head almost "turns" at the thought of the amount of labour which must be bestowed as bread cast upon the waters. That if cast it *will* be found, though after many days, is, however, undoubtedly true also, and worth consideration.

[The desirability of noting the *duration* of rain was pointed out in 1863 in the following words :—"The *best* plan would undoubtedly be to record, however approximately, the number of *hours* during which rain fell." *British Rainfall*, 1862, page 6.—Then the object aimed at was the relative duration of rain at land stations; it now appears that it is equally desirable as the only available link between rain observations on land and at sea. Of course, until self-recording rain gauges are general, we must trust to estimate, just as the Scottish Observers do in estimating each evening the number of hours sunshine in the closing day; but we agree with Mr. Gaster that something may be done, and hoping that some observers will keep such records, we thankfully accept Mr. Gaster's offer of discussing them.—ED.]

TABLE I.—*Prevalence of Rain, in zones of* 15° *of Latitude, and for each* 5° *of Longitude.*

SOUTH ATLANTIC.

Longitude.	Lat. 0°—15° S.				Lat. 15°—30° S.				Lat. 30°—45° S.				Lat. 45°—60° S.			
	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.
15°—20°E.	...	...	...	...	15	1	6·7	1	4617	184	4·0	3	...	...	...	...
10 —15	24	1	4·2	1	591	14	2·4	2	5248	190	3·6	3	...	...	...	...
5 —10	27	1	3·7	2	1971	36	1·8	3	4912	200	4·1	3	...	...	...	...
0 — 5 E.	60	1	1·7	3	2223	35	1·6	3	3729	240	6·4	3	...	...	...	...
0 — 5 W.	54	0	0·0	3	2637	87	3·3	3	4323	245	5·7	3	...	...	...	...
5 —10	833	22	2·6	3	1668	78	4·7	3	3270	183	5·6	3	...	...	...	...
10 —15	1828	66	3·6	3	585	?41	?7·0	3	3339	193	5·8	3	...	...	...	...
15 —20	2526	75	3·0	3	942	47	5·0	3	3085	186	6·0	3	...	...	...	...
20 —25	4167	211	5·1	3	2333	127	5·4	3	3834	367	9·6	3	...	...	...	...
25 —30	7189	368	5·1	3	6177	360	5·8	3	2200	180	8·2	3	...	...	..	...
30 —35	10325	715	6·9	3	8320	606	7·3	3	2001	138	6·9	3	...	...	...	...
35 —40	2919	265	9·1	3	9487	735	7·7	3	3691	293	7·9	3	30	2	6·7	1
40 —45	85	6	7·1	1	3506	226	6·4	2	6262	421	6·7	3	165	18	10·9	1
45 —50	...	...	...	...	884	76	8·6	1	7732	511	6·6	3	1041	84	8·1	2
50 —55	...	...	...	...	...	...	...	...	5133	289	5·6	3	2373	227	9·6	3
55 —60	...	...	...	...	...	...	...	...	2686	133	5·0	2	3960	329	8·3	3
60 —65	...	...	...	...	..	...	...	...	804	30	3·7	1	7456	666	8·9	3
65°—70°W.	...	...	...	...	...	...	...	...	...	...	...	...	5313	756	14·2	3
Totals & Means	30,037	1,731	... *5·8	...	41,339	2,469	... *6·0	...	66,866	3,983	... *6·0	...	20,338	2,082	... *10·2	...

* These values are obtained from the grand Totals at the bottom of the "Observation" columns.

TABLE II.—*Prevalence of Rain, in zones of* 15° *of Latitude, and for each* 5° *of Longitude.*

NORTH ATLANTIC.

Longitude.	Lat. 0°—15° N.				Lat. 15°—30° N.				Lat. 30°—45° N.				Lat. 45°—60° N.			
	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.
5°— 10°E.	222	24	10·8	1	...	...	...	...	12	2	16·7	1	...	...	...	...
0 — 5 E.	153	9	5·9	2	...	...	...	...	9	1	11·1	1	...	...	...	...
0 — 5 W.	303	32	10·6	2	...	...	...	...	225	8	3·6	1	926	89	9·6	3
5 — 10	442	67	15·2	2	...	...	...	...	404	10	2·5	3	2391	211	8·8	3
10 — 15	823	175	21·3	2	...	...	...	...	545	24	4·4	3	2698	306	11·3	3
15 — 20	1043	115	11·0	3	108	7	6·5	3	693	52	7·5	3	2533	357	14·1	3
20 — 25	3033	401	13·2	3	446	9	2·0	3	666	56	8·4	3	2391	339	14·2	3
25 — 30	4504	618	13·7	3	1185	57	4·8	3	912	66	7·2	3	2381	360	15·1	3
30 — 35	2410	334	13·9	3	2038	102	5·0	3	1376	135	9·8	3	2248	313	13·9	2
35 — 40	1660	221	13·3	3	2212	171	7·7	3	2215	228	10·3	3	1990	348	17·5	2
40 — 45	1597	257	16·1	3	1480	142	9·6	3	2955	380	12·9	3	1392	273	19·6	2
45 — 50	978	89	9·1	3	1152	96	8·3	3	3622	437	12·1	3	910	139	15·3	1
50 — 55	387	18	4·7	1	1159	66	5·7	3	4359	547	12·5	3	288	33	11·5	1
55 — 60	119	4	3·4	2	1490	95	6·4	3	4795	616	12·8	3	126	21	16·7	1
60 — 65	53	4	7·5	1	1781	136	7·6	3	5097	577	11·3	3	...	...	...	...
65 — 70	48	0	0·0	1	1551	129	8·3	3	7869	774	9·8	3	...	...	...	...
70 — 75	...	...	...	...	2093	147	7·0	3	8278	879	10·6	3	...	...	...	...
75 — 80	65	10	15·4	1	2504	177	7·1	3	1777	151	8·5	2	...	...	...	...
80 — 85	69	2	2·9	1	2157	95	4·4	3	48	3	6·3	1	...	...	...	...
85 — 90	...	..	...	...	1436	101	7·0	2	..	...	...	...	...	...	...	...
90 — 95	...	...	...	...	227	11	4·8	3	...	...	...	...	...	...	...	...
95°—100°W.	...	...	...	...	132	14	10·6	3	...	...	...	...	...	...	...	...
Totals and Means	17,909	2,380	... *13·3	...	23,151	1,555	... *6·7	...	45,857	4,946	... *10·8	...	20,274	2,789	... *13·8	...

* These values are obtained from the grand Totals at the bottom of the "Observation" columns.

TABLE III.—*Prevalence of Rain, in zones of 15° of Latitude, and for each 5° of Longitude.*

NORTH PACIFIC, (to Lon. 150° W.)

Longitude.	Lat. 0° — 15° N.				Lat. 15° — 30° N.				Lat. 30° — 45° N.				Lat. 45° — 60° N.			
	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.	Total Observations.	Observations of Rain.	Per Centage of Rain.	No. of 5° Zones where made.
75°— 80°W.	1117	194	17·4	2	...	...	...	...	...	...	...	...	...	...	The observations in this Zone are principally in the Summer months.	...
80 — 85	3960	496	12·5	2	...	...	...	...	...	...	...	...	...	...		...
85 — 90	2463	239	9·7	3	...	..	...	...	...	...	...	...	...	...		...
90 — 95	3243	243	7·5	3	30	5	16·7	1	...	...	...	...	...	...		...
95 —100	1668	197	11·8	3	219	9	4·1	1	...	...	...	...	...	...		...
100 —105	2328	325	14·0	3	707	23	3·3	1	...	...	...	...	...	...		...
105 —110	2813	581	20·7	3	1336	78	5·8	2	...	...	...	...	...	...		...
110 —115	4287	761	17·8	3	1794	94	5·2	3	...	...	...	...	...	...		...
115 —120	4728	777	16·4	3	2746	143	5·2	3	333	9	2·7	1	...	...		...
120 —125	2478	307	12·4	3	3580	130	3·6	3	3531	151	4·3	3	18	8	44·4	1
125 —130	1254	114	9·1	3	3651	169	4·6	3	4230	262	6·2	3	129	20	15·5	2
130 —135	1297	131	10·1	3	3120	157	5·0	3	3763	202	5·4	3	402	40	10·0	3
135 —140	950	87	9·2	3	1523	78	5·1	3	2736	161	5·9	3	1748	164	9·4	3
140 —145	737	104	14·1	3	1466	147	10·0	3	1554	126	8·1	3	3552	308	8·4	3
145°—150°W.	894	109	12·2	3	1284	98	7·6	3	1284	103	8·0	3	4803	434	9·0	3
Totals and Means....	34,217	4,665	... *13·6	...	21,456	1,131	... *5·3	...	17,431	1,014	... *5·8	...	10,652	974	... *9·1	...

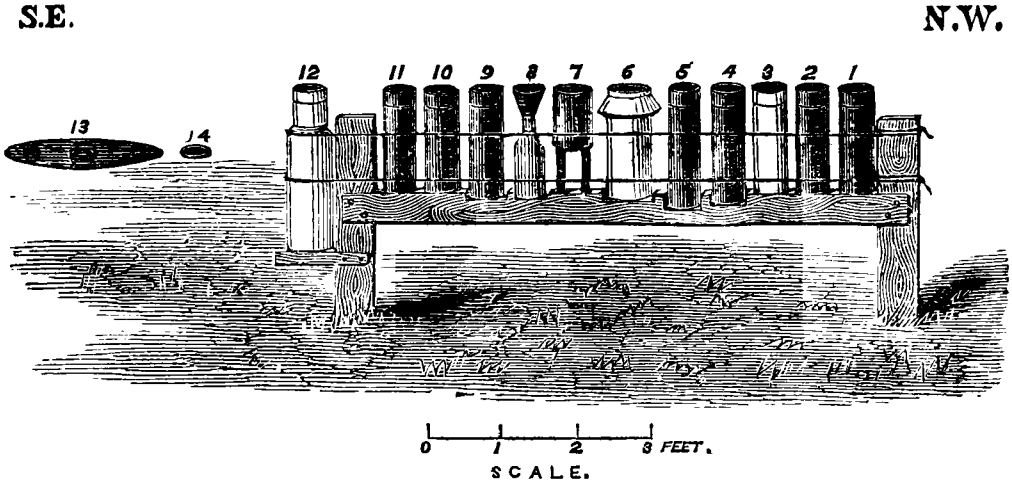
* These values are obtained from the grand Totals at the bottom of the "Observation" columns.

TABLE IV.—*Per-centage of Rain, in zones of 5° of Lat., for each Month.*

MONTHS	0°— 5°	5°—10°	10°—15°	15°—20°	20°—25°	25°—30°	30°—35°	35°—40°	40°—45°	45°—50°	50°—55°	55°—60°
	Zones of 5° of Latitude.—SOUTH ATLANTIC.											
Dec....	3	3	1	8	8	7	7	5	4	3	7	12
Jan. ...	5	2	3	5	5	8	5	6	5	3	5	10
Feb....	10	2	2	5	8	8	6	6	4	6	7	13
March.	14	5	4	6	7	6	7	6	6	6	10	14
April..	17	6	4	6	6	7	5	7	8	12	12	17
May...	10	9	4	2	3	6	6	6	9	9	16	24
June..	9	13	6	4	3	4	6	7	12	12	13	12
July...	5	6	9	6	5	8	7	7	4	8	13	15
Aug....	3	6	5	6	6	8	8	10	7	8	13	23
Sept...	2	3	4	5	5	6	6	6	7	9	6	10
Oct. ...	2	1	5	6	5	5	4	5	5	7	7	15
Nov. ..	2	3	4	8	7	7	4	5	7	2	6	20
	Zones of 5° of Latitude.—NORTH ATLANTIC.											
Dec....	15	13	6	7	12	4	6	14	18	17	14	7
Jan. ...	16	6	3	5	8	8	11	12	16	15	20	9
Feb....	15	5	3	5	6	11	12	18	13	18	15	12
March.	20	5	2	3	4	6	9	15	18	16	16	...
April..	20	10	3	6	3	5	9	12	14	13	10	...
May...	19	14	5	6	6	9	9	8	14	12	10	3
June..	13	20	8	6	7	5	3	9	9	10	6	6
July'...	10	20	11	4	4	10	8	8	7	9	8	5
Aug. ..	8	14	9	4	3	7	8	7	6	13	9	6
Sept...	3	18	12	13	5	12	10	7	9	11	8	5
Oct. ...	16	25	11	8	6	8	8	7	12	18	14	9
Nov. ..	12	20	10	3	6	9	12	11	13	20	16	...

(The West Indies not included.)

The per-centages on Maury's diagram are only given to the nearest 1 per cent.



ARRANGEMENT OF EXPERIMENTAL GAUGES AT FRAMFIELD LODGE.

ON RAIN GAUGE EXPERIMENTS AT FRAMFIELD LODGE, HURST GREEN.

By the Rev. T. E. Crallan.

In order to arrive at any just and true deductions from the observations of rainfall, it is of course first and absolutely necessary that the observations themselves should approach as nearly as possible to perfect correctness. To arrive at this desirable state of things, it seems imperative to eliminate all sources of error, and arrive at tables for correction, for altitude, magnitude, and such other differences as may occur, so as to bring all observations to the same uniform standard. The observations made, and making, at Calne and other stations, as to magnitude and elevation, will, it is to be hoped, tend much to elucidate those points. There will still remain to be settled the points of comparison of materials, and of evaporation from different gauges of different constructions, and the effect of daily as compared with monthly reading. I have undertaken the charge of a series of gauges with this view.

For this purpose the gauges are all of the same construction, or nearly so, *i.e.*, they are all of the usual form of a funnel of some material, which conducts the rain into some kind of receptacle, and they are all of the same diameter. They are ranged upon a shelf, standing N.W. and S.E., and with their rims 3 feet above the ground. The shelf itself consists of two strips of half-inch oak board nailed to the sides of two posts, and the gauges stand upon the edges of the boards, allowing the air to pass freely under them, except where they are in contact with the boards. They are kept in their vertical position by some thin rope stretched on each side of them. Their materials and constructions are as follows—the list being numbered from the N.W. end of the shelf, as shown in the engraving.

1. App's black can, metal funnel.
2. Similar to No. 1, but glass bottle enclosed.
3. White can, metal funnel, also white.
4. Black can, earthenware funnel.
5. Black gauge, entirely ebonite.
6. White can, cased in wet sand.
7. Evaporator.
8. Casella's metal funnel, earthenware bottle not enclosed.
9. Casella's black can, metal funnel.
10. Black can, glass funnel.
11. Similar to No. 1.
12. Casella's long white protected gauge.

Near to these, and so placed as to have their rims $\frac{3}{4}$ in. above the ground, are two other gauges of zinc. One is of the ordinary construction. The other consists of a circular plate of zinc 3 ft. in diameter. The central portion is enclosed by a rim $\frac{3}{4}$ in. high to prevent the rain falling on the enclosed portion from running away. This central portion is itself pierced with a few holes, underneath is a zinc can fitted into a collar. By this arrangement it is assumed that insplashing will be compensated by outsplashing.

It will be noticed that Nos. 1, 9, and 11 are similar; 1 and 11 have been thus arranged to detect any irregularity in the fall at the two ends of the shelf. No. 2 is intended to test the effect of increasing the size of the inlet pipe upon the evaporation of the contents. No. 6 was arranged to render evaporation as nearly inappreciable as possible, the pipe from the funnel passing through an india rubber collar into a nearly air-tight bottle,* this bottle being protected by two cans with an inch and a half of wet sand between the two. This has been improved upon by Mr. Casella in gauge No. 12, where the intermediate space is occupied by hair felt, similar to that used for coating steam-boilers, on account of its non-conducting properties, which in this case should suffice to prevent either evaporation or damage from frost.

No. 9 is read daily at 9 a.m. The rest on the 1st of each month at the same hour. In No. X. of the *Meteorological Magazine*, Mr. Symons mentions that with these gauges under his charge during a portion of last year, he found that the amount collected in gauges with funnels of glass and pot exceeded the amount in those with metal funnels by about 6 per cent., and that gauges thoroughly protected from evaporation *may* exceed those unprotected by about the same amount. I hope in the course of the year to obtain a set of observations which may elucidate these points.

* Of course the suggestion that the bottle should be air-tight is absurd; the compressed air would keep the water from entering the bottle at all,

It is in fact very desirable, if possible, to arrive at some gauge which from a combination of form, size, construction, and material, should as nearly as possible give us a correct measure of the amount of rainfall upon the earth's surface, and to determine, if possible, the corrections required to reduce observations with the various forms of gauge hitherto used, to their true values. At the present moment we have so many different constructions, sizes, materials, and altitudes, that the results from them all cannot be depended on as giving comparable results for different localities.

I purpose to discuss the results of my series of gauges from time to time, in the *Meteorological Magazine*, and to give the set for the year in *British Rainfall* for 1867, if all continues as I anticipate and hope. In the meantime, I shall be much pleased to receive suggestions, to answer any inquiries in my power, or to add to my series any additional gauges for comparison with those now here.

The readers of *British Rainfall* will probably know the objections which have been raised against large gauges on the one hand, and small ones on the other, and that some have been constructed with a tube on the top of the funnel and some without. I fancy there are not many without either funnel or tube, like No. 14 in my series, and I have the satisfaction, at any rate, of knowing that in snow it is covered like the ordinary surface of the ground in its neighbourhood. Apparently, this arrangement gets rid of the eddy of wind, complained of in the funnels and tubes of other gauges.

The position in which these gauges are placed is perfectly open to all influences of wind and weather, without let or hindrance.

Framfield Lodge, Hurst Green, Sussex.

[We think our readers will forgive us, if they do not thank us, for reproducing the following article, so as to bring all the details compactly together.]

INCOMPLETE RAIN GAUGE EXPERIMENTS.

(From the Monthly Meteorological Magazine, December, 1866.)

The following paragraph with reference to some desultory experiments at Camden Road, appeared on the cover of lasts month's Magazine :—

"I may just mention that *at present* there appears to be a considerable increase in the amount collected by gauges whose funnels are of glass and pot—*i.e.*, unoxidisable surfaces, the excess being nearly 6 per cent. ; and that gauges thoroughly protected from evaporation *may* exceed unprotected ones by about the same amount. Therefore (so far as the present observations go), a thoroughly protected gauge, with a permanently smooth surface would, apparently, exceed an ordinary one by nearly 12 per cent.—an enormous difference, and one which needs close scrutiny."

So many enquiries have been made respecting these experiments that I am reluctantly induced to print the results hitherto obtained—reluctantly, because they must, for several reasons, be accepted with considerable reservation, and subject to correction, perhaps even to reversal, by the better conducted series which will commence from January, 1867, prior to which time these and some

other gauges will be placed on the lawn of Framfield Lodge, Sussex, under the care of my friend, the Rev. T. E. Crallan, who has most kindly undertaken to continue the observations. A few words as to the "shelf gauges" will conclude; they were always all measured with one glass, hence any slight error in it would be common to all, but it is not 20 grains(=0·004 in.) wrong at any point. The funnels are not at present *perfectly* uniform, but their areas are not sufficiently different to account for the differing indications; they are as under:

N.W. end of shelf,	diameter	5·000	inches,	therefore area	=19·64 in.
Glass funnel gauge	,,	5·003	,,	,,	=19·65 in.
Earthenware ,,	,,	4·987	,,	,,	=19·58 in.
White Can ,,	,,	4·997	,,	,,	=19·62 in.
Sand buried ,,	,,	5·000	,,	,,	=19·64 in.
S.E. end of shelf	,,	5·003	,,	,,	=19·65 in.

The effect of these variations, amounting only to $\frac{1}{300}$th of the total area is practically nil. A more serious source of uncertainty is the fact (only recently noticed) that the rims are not all equal in slope, so that possibly the excess caught by the glass and pot funnelled gauges is due in whole or in part to insplashing from their flatter rims. As most clearly showing the results obtained, the observations are entered as differences from a standard in each series, as stated in the table.

Subject to full correction by future and better conducted observations, the results may be thus epitomized. (1) An 8 in. gauge catches 1 per cent. more than a 5 in. gauge, if both are under similar conditions, (2) a gauge measured monthly, if well protected against evaporation, records 4 per cent. more than it would if read daily, (3) a gauge wirh a glass funnel collects 7 per cent. more than one with a metal funnel, (4) a gauge with a funnel of white earthenware, collects 4 per cent. more than one with a metal funnel, (these results are open to question for the reason stated above), (5) a gauge painted white records rather more (2 per cent.) than one painted black, perhaps because it is less heated by the sun, because (6) a gauge buried in wet sand, and with other provisions against loss by evaporation, exceeds an unprotected one by 5 per cent., and if read monthly, probably exceeds an unprotected one read daily, by about 8 per cent. *All these results must, however, be considered liable to contradiction.*

Conscious that I have not given, have not been able to give, to these observations the care they merit, I have the satisfaction of having broken ground, and the far greater satisfaction of knowing that henceforth they and the questions arising from them, will be in the able hands of Mr. Crallan. G. J. SYMONS.

Gauges on, or partly sunk in, the ground. *Gauges on a shelf running N. W., S.E.*

Read daily at 9 a.m. & 9 p.m			Read at 9 a.m, 1st of month			Read monthly at 9 a.m. on the 1st.				
1866	8 in. Glaisher's gauge. 6 in. above ground.	5 in. Casella can gauge, bottle, & india rubber collar, 6 in. above ground.	5 in. Casella can gauge, bottle, & india rubber collar, 6 in. above ground.	5 in. Casella can gauge, no bottle. 1 ft. above ground	5 in. Negretti gauge. 1 ft. above ground.	Mean of two gauges, one at each end of the shelf. Black can gauge, no bottle inside.	Black can gauge, no bottle inside, but with a glass funnel instead of a metal one.	Black can gauge, no bottle inside but with an earthenware funnel instead of a metal one.	White can gauge, no bottle inside.	Black can gauge, with bottle and india rubber collar, it is bedded in a large closed case of wet sand.
April..	1·76	+ ·02	+·09	—·05	+·08	1·68	+ ·15	+·08	—·01	+·03
May...	2·03	— ·02	+·02	—·11	·00	1·83	+ ·22	+·11	+·07	+·13
June..	3·98	+ ·02	+·08	+·01	—·04	3·65	+ ·30	+·13	+·11	+·13
July...	1·19	— ·03	+·04	—·09	—·01	·98	+ ·11	+·09	—·08	+·15
Aug ...	2·76	— ·02	+·12	+·02	—·04	2·51	+ ·25	+·17	+·08	+·24
Sept..	3·88	— ·09	+·26	+·26	—·08	3·97	+ ·12	+·09	+·09	+·12
Oct. ...	2·32	— ·04	—·01	—·12	—·13	2·14	+ ·05	+·06	+·02	+·03
Nov ...	1·73	— ·03	—·02	—·23	—·11	1·55	+ ·13	+·06	+·01	+·05
Sums	19·65	—0·19	+·58	—·31	—·33	18·31	+1·33	+·79	+·29	+·88

NOTES ON SOME RESULTS OF THE VARIOUS SETS OF EXPERIMENTAL GAUGES,

AT CALNE, CASTLETON MOOR, AND ROTHERHAM.

In the forefront of these few remarks, I desire to express, on behalf of my fellow-labourers and myself, our best thanks to Colonel Ward, to Mr. Bates, and to Mr. Chrimes, for the splendid sets of observations they have conducted on the two questions of the influence on their indications of the elevation of gauges above the earth's surface, and the variation of the fall indicated by gauges of different sizes.

I desire, also, to enlist the services of some one willing to devote his leisure hours to the proper discussion of the observations already made. It is a matter of pressing importance for our future guidance, and I sincerely hope that I shall receive not one offer, but several, and then I know that before another year has passed we shall witness the solution of difficulties hitherto insurmountable. I would gladly undertake it myself, but other branches of the work, which must be done by myself, render it impossible—to others, therefore, must be the work, and the credit, and the thanks.

Influence of Elevation.—Pending the thorough discussion above referred to, it appears desirable to state some of the broad results hitherto obtained, and to this end I have prepared the following short table, showing the relative amount collected by various gauges during the last three years. It should be understood that I had no special reason for selecting 1 foot as the standard of comparison, save that gauges at that height were common to all four sets of observations :—

Relative Rainfall at different heights, as deduced from the Calne Observations. Gauges 8 inches in diameter.

	1864.	1865.	1866.	Mean.
Isolated Level.....	—	—	1·05	1·05
Level	1·05	1·06	1·08	1·06
2 in.	1·03	1·05	1·05	1·04
6 in.	1·02	1·01	1·01	1·01
1 foot	1·00	1·00	1·00	1·00
2 ft.	·98	·98	·99	·99
3 ft.	·97	·98	·99	·98
5 ft.	·96	·97	·96	·96
10 ft.	·95	·95	·95	·95
20 ft.	·93	·95	·95	·94

From Castleton Observations. *Gauges 8 inches diameter.*

1 foot	1·00	...	1·00
5 ft.	·97	...	·95
20 ft.	·90	...	·90

From Castleton Observations. *Gauges 5 inches diameter.*

1 foot	1·00	...	1·00
5 ft.	·95	...	·93
20 ft.	·90	...	·87

From Rotherham Observations, 1866. *Gauges 5 inches diameter.*

1 foot	1·00	15 ft.	·91
5 ft.	·95	20 ft.	·91
10 ft.	·92	25 ft.	·89

From these figures it appears that if we are still in doubt as to the *cause* of the decrease in the amount collected in elevated gauges, we are no longer in much uncertainty as to its amount, and I hope that as soon as these observations are fully discussed, we may with considerable confidence reduce observations made with gauges elevated on pillars to the fall at any uniform height hereafter to be adopted, thus mitigating, though not abolishing, the inconvenience and error at present resulting from the very different heights at which the mouths of the gauges are placed above the soil. Doubtless it will be as satisfactory to others as it is to myself to find that a range from 6 inches to 24 inches above the ground causes only a difference of 2 per cent. in the indications. These results apply simply to the mean yearly values. The influence of season, temperature, humidity, and wind has yet to be worked out. Incidentally it may be mentioned that the influence of elevation is far greater in winter than in summer—in some cases nearly double. Possibly this is an indication that the effect is simply due to wind. These and many other points we may solve by the experiments already made. I proceed to notice a few cases which our present information is insufficient to solve : gauges upon roofs, and upon, or by the side of, walls. It is quite certain that the results hitherto obtained (and which were conducted in the only manner calculated to teach us the laws of decrease uninfluenced by disturbing causes), are not applicable where a mass of buildings and chimnies surround the gauge, and I have no hope of being able to reduce such observations to the fall at the ground. At Exeter, for instance, in 1865, the fall at heights less than 1 foot above the ground was at three stations 35·4, 35·6, and 35·8 respectively ; the mean of these accordant results is 35·6 The rain gauge at the Devon and Exeter Institution, now that the holly bush has been cut down, may be considered a fair specimen of a gauge on a wall, and its mouth is 13 ft. 7 in. above the ground. The fall at the ground we have seen may be taken at 35·6 inches ; if we take the deficiency indicated by

the previous tables as 7 per cent., we find that the fall should have been 33·1, whereas the recorded fall is 35·5, being in fact nearly as much at 14 ft. as on the ground. A still more anomalous result is obtained from Mr. Ellis's observations on the top of his premises in the High-street. There are two gauges, one at 44 ft. and another at 48 ft. The highest gauge collected (35·5) half an inch *more* than the lower (34·9), and recorded exactly the same fall as the institution gauge at 14 ft., the difference due to 34 ft. additional elevation being nil. In other cases the effect is just as much in excess. For instance, in 1861 two gauges were kept by Mr. Washington Moon in the Finchley Road; the ground gauge collected 20·6, the gauge on the roof, 36 ft. above the ground, collected 14·0. There we find the difference due to 36 ft. was one-third of the total fall. The explanation is probably that the Exeter gauges were in the middle of the city, and the Finchley house was detached and in a very exposed situation. It is very evident from the foregoing that our present information is insufficient for the reduction of roof observations.*

The two cases I have quoted are perhaps extreme ones, but if I may for a moment express opinion, irrespective of further proof in support thereof, it is that I feel almost certain that roof observations are hopelessly unreducible. Where they have been continued for a length of time I would not recommend their abandonment, because they are useful for giving the secular variation from year to year, but they are no guide to the fall on the ground, and are not comparable one with another. Gauges on or attached to walls seem more hopeful, because it appears probable their indications depend solely on these conditions: elevation, elevation above the wall, angle which the wall makes with the plane of the meridian. These are definite points, each capable of direct determination, and therefore I do not despair, though always extremely sorry to find a rain gauge either on a roof or a wall, in fact anywhere but on or in the ground.

As to the Influence of the Size of the Receiving Surface of a Rain Gauge.—I approach this subject with feelings somewhat akin to amusement, because the *Mechanics' Magazine* in May last did me the honour of devoting four columns to scolding me for advocating small rain gauges, in spite of my stating in *British Rainfall*, 1863, p. 9, that "I had no preconceived theories or fancies to support." In *British Rainfall*, 1864, p. 12, "We will jump to no conclusions," and on p. 13, "With respect to the magnitude series silence is at present best;

* There is no particular use, neither can I see any harm, in mentioning that the mean decrease at Exeter (nil) and at Finchley ($\frac{1}{3}$) of one-sixth, or 17 per cent., agrees remarkably with the decrease indicated by the Rotherham elevation gauges.

large and small gauges have their respective champions ready to pounce upon every hasty word, therefore I wait the conclusion of the experiments, and leave the results for individual examination."

I regret having neither time to answer, nor space to reproduce the article, I must therefore proceed to examine the facts at present ascertained, and as my critic termed small rain gauges "toy like things," will take as the standard of comparison a gauge of which the diameter being 24 inches, the area is 452 inches, and would therefore prove a decidedly unmanageable "pipkin," as he elsewhere styles 5 inch gauges.

Relative fall indicated by gauges of different sizes at Castle House, Calne, all 1 *foot above the ground.*

Receiving Surface.	1 inch diam.	2 inch diam.	4 inch diam.	5 inch diam.	6 inch diam.	8 inch diam.	12 in. diam.	24 in. diam.	5 inch square	10 in. square	5 inch Flange.
1864.....	·93	·96	1·01	1·00	1·03	1·04	1·01	1·00	·98	1·00	1·02
1865.. ...	·94	·97	1·00	1·00	1·02	1·02	1·00	1·00	1·00	1·00	1·02
1866.....	·94	·97	1·02	1·01	1·05	1·06	1·02	1·00	1·00	1·00	1·03
Mean	·94	·97	1·01	1·00	1·03	1·04	1·01	1·00	·99	1·00	1·02

This table shows that a 5 inch gauge indicates the same as one more than twenty times its size—a fact which I have the pleasure of submitting to the advocates of washing tubs instead of pipkins. But to be serious, it is extremely satisfactory to notice that with the exception of gauges one, two, six, and eight inches in diameter, the indications only vary 1 per cent. + or —. I am at a loss to understand the remarkable excess of the 8 inch gauge. My first impression on working out the above values was that there must be an error in the gauge; I therefore took the records of the gauge of the same size and height above ground belonging to the elevation series, and deduced the following results :—

	Gauge 24 inches diameter.	Gauge 8 inches diameter, Magnitude Series.	Gauge 8 inches diameter, Elevation Series.
1864	1·00	..... 1·04	..... 1·04
1865	1·00	.... 1·02	..... 1·02
1866	1·00	..... 1·06	..... 1·03
Mean	1·00	1·04	1·03

It can scarcely be assumed that the 4 inch, 5 inch, 12 inch, and 24 inch diameter, and 5 inch and 10 inch square gauges are all wrong, as their extreme difference is but 2 per cent., and the mean of them all is identical with the 24 inch gauge, and on the other hand it is improbable that *both* Colonel Ward's 8 inch gauges, in different positions, and by different makers, are inaccurately made, and with errors of a like kind. I am, therefore, unable to offer any explanation of the anomaly.

We have seen that at Calne the 5 inch and 24 inch gauges do not differ 1 per cent. As there is no other 24 inch gauge at work, we must in other comparisons substitute 5 inch gauges as standards.

	Castleton Moor, Manchester.						*Bayfordbury, Hertfordshire.*			*Calne.*	
	1 ft. above ground.		5 ft. above ground.		20 ft. above ground.			1 ft. above ground			20 ft. above ground.
	5 in.	8in.	5 in.	8 in.	5 in.	8 in.		5 in.	8 in.		5 in.	8 in.
1864...	1·00	1·01	1·00	1·03	1·00	1·01	.....	...	...	.....	1·00	1·03
1865...	1·00	1·00	1·00	1·02	1·00	1·03	.....	1·00	1·01	.....	1·00	1·03
1866...	...	...	...	...	...	...	.....	1·00	1·01	.....	1·00	1·02

These results, therefore, do not give so large an excess as that shown by the 8 inch gauges at Calne, and lead to the inference that so far as size is concerned no difference exceeding 1 or 2 per cent. exists between the indications of gauges whose apertures have areas from 12 to 452 inches.

It has been said that though large and small gauges may agree very well in sheltered positions, they will not do so in exposed ones. I do not think many more exposed situations can be found than those occupied by the gauges perched on poles 20 ft. high at Calne and at Castleton Moor. We have seen that the amounts collected at 1 foot at Calne are 5 in. 1·00, 8 in. 1·03; the last table shows that the gauges at 20 ft. gave 5 in. 1·00, 8 in. 1·03, the exposure producing no effect. At Castleton, at 1 ft., 5 in. =1·00, 8 in. 1·01; at 5 ft. 1·00 and 1·03; and at 20 ft. 1·00 and 1·02, the difference being evidently due to some other cause, as it is greatest at the intermediate height.

In concluding this outline, I have only to repeat the previously expressed wish that some one with leisure will set earnestly to work on the observations (duplicates of which will be cheerfully lent), and prepare a thorough digest of their results.

INTERIM NOTE ON MR. CHRIMES' INCLINED & TIPPING GAUGES.

THE Rotherham experimental gauges were barely fixed when *British Rainfall*, 1865, was printed off. This year I have the pleasure of quoting an abstract of *some* of the results—*some* only, because it is impossible for me, in the midst of the heavy work inseparable from preparing these pages, to devote to the discussion of these observation the time their accuracy and importance rightly claim. For convenience, the description of the instruments is repeated, and those added during the year are also enumerated.

RAIN GAUGES AT ROTHERHAM.

Five-mouthed Gauge.—A gauge similar, I believe, to one employed many years ago by Professor Phillips, having one horizontal and four vertical funnels, facing E., W., N., and S. Of course if the rain is absolutely vertical, it will only enter the horizontal funnel; if coming absolutely horizontal, and from say, due east, it will only enter the funnel facing east; if at any intermediate angle, it will partly fall into two or three funnels; each being provided with separate pipes and taps, the quantity caught by each is known, and the angle and azimuth whence the rain fell can be easily calculated.

Inclined Rotating Gauges.—Originally there were two of these, but in March, 1866, others were added, and there are now four gauges, each keeping its mouth tilted towards the wind at a fixed angle—the inclinations are 22½°, 45°, 67½°, and 90°—and one, of which the tilt varies with the force of the wind: in a dead calm the mouth is horizontal; in a gale it tips to an angle of 90°; it was expected, therefore, in windy weather, to catch more than any other, but, as will be seen on reference to the tables, this expectation has not been realized.

Elevated Gauges.—These are twelve in number, and placed at the elevations shown in the table.

Results.—I have already stated that I cannot discuss these observations so fully as they merit, but may just point out one or two results which are easily deduced and of high importance. The per-centage of decrease due to elevation has been quoted on page 26. It was not mentioned there, but attention may be called to the regularity of the excess of the gauges read monthly over those read daily, indicating probably that the loss by evaporation is less than that from repeated measurements—a fact I remit to Mr. Crallan for use in his experiments thereon.

Last summer, my friend, Mr. Baxendell, F.R.A.S., kindly examined the earlier sheets of the Rotherham records, and deduced some results, of which the only copy was sent to the British Association, and will

in due course be published; meanwhile, I have determined* the mean angle from the vertical at which rain fell in each of the nine months, April to December, as follows :—

Month.	Mean angle.	Rain collected by gauge at 1 ft. being 100, rain at 25 ft. =	Mean velocity of wind on days with rain.
April	54° 45′	89	164 miles
May.....	50 22	78	192 ,,
June	35 51	93	123 ,,
July.....	32 40	94	103 ,,
August	34 19	88	137 ,,
September ...	25 5	92	107 ,,
October	28 18	95	114 ,,
November ...	45 26	83	180 ,,
December ...	42 26	80	197 ,,

It was not to be expected that a fragmentary examination should reveal much of the information lying hid in these ample records, and this for several reasons; one difficulty may be mentioned, which is not very readily overcome—namely, that the mean daily velocity of the wind during days with rain is a poor guide to the velocity during the time the rain is actually falling, which alone can have any relation to the different amount collected by variously conditioned gauges. This might be obviated by establishing a self-recording anemometer and rain-gauge along with the other instruments, but I cannot think it advisable to go to this further expense until we have thoroughly worked up our present materials.

A few words in conclusion. The results in the above small table seem to show clearly the influence of the wind's velocity, not only on the angle of the falling rain, but also on the ratio of the fall in elevated gauges to that on the ground. How near this brings us to the solution of the *vexata quæstio* of the reason why elevated gauges catch less than those on the ground, I presume not to say.

* From the horizontal values of the 5-mouthed gauge, and the 90° rotating gauge.

RAIN GAUGE EXPERIMENTS, BOSTON RESERVOIR, ROTHERHAM,

Lat 53° 25′ N., Long. 1° 20′ W. 381 feet above the Sea Level.

FOR THE YEAR 1866.

	FIVE MOUTHED GAUGE.					INCLINED ROTATING GAUGES.				
Height above ground ...	5 feet.					5 feet.				
MONTHS.	Facing East.	Facing North.	Facing West.	Facing South.	Horizontal Centre.	22½°	45°	67½°	90°	Tipping.
January	...	...	...	...	...	...	...	...	...	...
February	·686	·724	1·703	1·012	2·167	...	3·884	...	...	2·572
March	·648	·466	·211	1·400	1·554	...	2·561	..	...	...
April	·849	·593	·038	·076	·986	1·322	1·624	1·600	1·395	1·190
May	·195	·252	·130	·222	·515	·760	·758	·779	·622	·622
June.....	1·415	1·428	·218	·296	3·439	4·040	4·116	3·652	2·485	3·624
July	1·159	1·509	·680	·254	3·965	4·733	4·702	3·926	2·542	4·300
August.....	·220	1·443	1·059	·420	2·616	2·659	3·181	2·700	1·785	2·975
September	·887	·900	·312	·862	3·646	4·114	3·918	3·148	1·706	3·813
October	·867	·761	·346	·817	3·054	3·566	3·796	2·787	1·644	3·172
November	·373	·941	·761	·791	1·964	2·643	2·933	2·750	2·041	2·401
December	·181*	·036*	1·179*	·904*	1·673*	2·147*	2·279*	2·125*	1·529*	1·970*
Total, Feb. to Dec.	7·480	9·053	6·637	7·054	25·579		33·752			
Total, April to Dec.	6·146	7·863	4·723	4·642	21·858	25·984	27·307	23·467	15·749	24·067
Total, Feb. to Nov.	7·299	9·017	5·458	6·150	23·906		31·473			

* Vitiated by Snow.

RAIN GAUGE EXPERIMENTS, BOSTON RESERVOIR, ROTHERHAM,

Lat. 53° 25′ N., Long. 1° 20′ W. 381 feet above the Sea Level.

FOR THE YEAR 1866.

	ELEVATED GAUGES.																	
Height above ground.....	1 foot.			5 feet.			10 feet.			15 feet.			20 feet.			25 feet.		
MONTHS.	Read daily.	Read mthly.	Diff.	Read daily.	Read mthly.	Diff.	Read daily.	Read mthly.	Diff.	Read daily.	Read mthly.	Diff.	Read daily.	Read mthly.	Diff.	Read daily.	Read mthly.	Diff.
January.....	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February.....	2·301	2·266	—·035	2·126	2·114	—·012	2·066	2·015	—·051	1·889	1·896	+·007	1·933	1·986	+·053	1·851	1·791	—·060
March	1·667	1·636	—·031	1·526	1·492	—·034	1·517	1·528	+·011	1·474	1·488	+·014	1·510	1·536	+·026	1·529	1·538	+·009
April.....	1·015	1·000	—·015	·957	·948	—·009	·937	·963	+·026	·916	·904	—·012	·881	·894	+·013	·908	·898	—·010
May.....	·596	·620	+·024	·529	·508	—·021	·504	·500	—·004	·498	·505	+·007	·484	·491	+·007	·464	·471	+·007
June.....	3·518	3·626	+·108	3·456	3·413	—·043	3·308	3·341	+·033	3·320	3·324	+·004	3·271	3·274	+·003	3·256	3·315	+·059
July.....	4·049	4·130	+·081	3·975	3·998	+·023	3·899	3·934	+·035	3·906	3·925	+·019	3·857	3·845	—·012	3·819	3·883	+·064
August.....	2·793	2·855	+·062	2·643	2·639	—·004	2·528	2·572	+·044	2·579	2·613	+·034	2·518	2·513	—·005	2·453	2·530	+·077
September....	3·774	3·847	+·073	3·612	3·586	—·026	3·549	3·611	+·062	3·537	3·596	+·059	3·521	3·506	—·015	3·483	3·464	—·019
October.....	3·123	3·175	+·052	2·990	3·041	+·051	2·928	2·996	+·068	2·934	2·978	+·044	2·940	2·941	+·001	2·952	2·975	+·023
November....	2·175	2·185	+·010	1·995	1·991	—·004	1·898	1·908	+·010	1·909	1·945	+·036	1·858	1·851	—·007	1·813	1·855	+·042
December.....	2·270	...*	...	2·096	...*	...	2·015	...*	...	1·952	...*	...	1·931	...*	...	1·828	...*	...
Total. Feb. to Dec.	27·281			25·905			25·149			24·914			24·704			24·356		
Total. Apl. to Dec.	23·313			22·253			21·566			21·551			21·261			20·976		
Feb. to Nov.	25·011	25·340	+·329	23·809	23·730	—·079	23·134	23·368	+·234	22·962	23·174	+·212	22·773	22·837	+·064	22·528	22·720	+·192

* Vitiated by Snow.

RAINFALL AT CASTLE HOUSE, CALNE, WILTS.

Lat. 51° 27′ N. Long. 1° 59′ W. 250 ft. above Mean Sea Level.

FOR THE YEAR 1866.

ELEVATION SERIES. Diameter of Gauges, 8 inches.

Height above ground.....	Isolated Level.	Level.	2 in.	6 in.	1 ft.	2 ft.	3 ft.	5 ft.	10 ft.	20 ft.	5 inch 20 ft..
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January.....	4·240	4·582	4·297	3·914	3·625	3·604	3·646	3·429	3·341	3·413	3·342
February ...	4·340	4·509	4·395	4·257	4·138	4·078	4·019	3·863	3·831	3·822	3·707
March	2·167	2·183	2·151	2·100	2·053	2·028	1·959	1·884	1·931	1·995	1·864
April	2·282	2·318	2·249	2·182	2·148	2·145	2·125	2·070	2·090	2·090	1·991
May	1·185	1·210	1·174	1·130	1·131	1·132	1·129	1·108	1·081	1·085	1·000
June	3·056	3·084	3·026	2·969	2·997	2·984	2·992	2·948	2·903	2·912	2·853
July	1·488	1·504	1·477	1·434	1·451	1·454	1·448	1·444	1·394	1·436	1·397
August	2·476	2·495	2·459	2·379	2·408	2·380	2·383	2·384	2·350	2·368	2·288
September...	6·866	6·910	6·790	6·716	6·683	6·684	6·663	6·575	6·515	6·560	6·509*
October.....	2·198	2·202	2·159	2·130	2·137	2·132	2·122	2·107	2·098	2·086	1·992
November...	2·482	2·537	2·435	2·345	2·351	2·289	2·250	2·173	2·070	2·003	2·035
December ...	3·144	3·270	3·133	2·945	2·921	2·880	2·820	2·750	2·662	2·587	2·619
Totals	35·924	36·804	35·745	34·501	34·043	33·790	33·556	32·735	32·266	32·357	31·597

MAGNITUDE SERIES. Gauges 1 foot above the ground.

Diameter.	1 in.	2 in.	4 in.	5 in.	6 in.	8 in.	12 in.	24 in.	5 in. square.	10 in. square.	5 in. flange.	5 in. Snowdon
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Jan.	3·237	3·665	3·760	3·623	3·856	3·910	3·656	3·753	3·648	3·678	3·786	3·847
Feb.	3·683	3·925	4·119	3·977	4·186	4·193	4·068	4·145	4·001	4·047	4·051	4·219
March	1·792	1·859	1·970	1·963	1·998	2·046	2·047	2·014	1·970	1·987	2·044	2·106
April	1·910	2·029	2·156	2·206	2·218	2·230	2·145	2·126	2·117	2·114	2·224	2·204
May	1·035	1·047	1·139	1·160	1·218	1·175	1·119	1·115	1·097	1·085	1·166	1·152
June	2·805	2·845	2·976	2·985	3·046	3·077	2·927	2·904	2·916	2·845	3·014	3·025
July	1·247	1·343	1·452	1·466	1·502	1·515	1·394	1·408	1·397	1·354	1·478	1·453
Aug.	2·052	2·188	2·395	2·419	2·481	2·513	2·332	2·342	2·292	2·241	2·423	2·440
Sept.	6·354	6·448	6·688	6·647	6·781	6·799	6·641	6·633	6·525	6·538	6·685	6·806
Oct.	2·007	2·028	2 101	2·108	2·117	2·146	2·098	2·118	2·083	2·082	2·126	2·183
Nov.	2·251	2·204	2·216	2·095	2·407	2·415	2·334	2·335	2·285	2·297	2·307	2·440
Dec.	2·867	2·737	2·782	2·859	3·049	3·027	2·941	2·974	2·837	2·958	2·890	3·064
Totals	31·240	32·318	33·754	33·508	34·859	35 046	33·702	33·167	33·168	33·226	34·194	34·939

* *October.*—Pipe of 20ft. 5in. gauge found to leak slightly and repaired ; 0·45 added to September fall, being the computed loss. *November.*—"I cannot account for the readings. (See also November, 1864.) The gauges are in good order. It would seem that the 5 in. (upright rim) *generally* in high wind collects less than its neighbour with the flange."—M. F. WARD.

RAINFALL AT THE ROYAL OBSERVATORY, GREENWICH.

FOR THE YEAR 1866.

Above Mean Sea Level.	155ft. 3 in.		156ft. 6in	164ft10in	177ft.2in.	193ft.2in.	205 ft. 6 in.	
Above Ground.	0ft. 5in.	0ft. 5in.	1ft. 8in.	10ft. 0in.	22ft. 4in.	38ft. 4in.	50ft. 8in.	50ft. 8in.
Description of Gauge.	Glaisher's 8 in. diam. read monthly.	Glaisher's 8 in. diam.	Crossley's	Glaisher's 8 in. diam.	Troughton 6 in. diam.	Glaisher's 8 in. diam.	Receiving surface, 10in by 20in	12 in. self-registering
	in.	in.	in.	in.	in.	in.	in.	in.
January ...	3·48	3·68	3·08	3·43	2·23	(1·32)	1·42	1·20
February...	3·90	4·03	3·55	3·77	2·66	2·67	2·14	2·01
March	1·56	1·63	1·28	1·45	1·08	1·01	0·90	0·88
April	2·44	2·44	2·16	2·40	2·14	1·62	1·47	1·43
May	1·95	1·94	1·76	1·89	1·71	1·50	1·37	1·26
June.....	3·57	3·64	3·55	3·62	3·36	3·13	2·87	2·80
July.....	1·58	1·62	1·68	1·60	1·39	1·58	...	...
August.....	2·40	2·42	2·44	2·36	2·01	2·06	...	...
September..	3·90	3·90	3·91	3·75	3·09	3·19	2·84	2·76
October ...	2·05	2·09	1·80	2·06	2·00	2·02	1·83	1·74
November .	1·48	1·48	1·30	1·41	1·04	1·01	0·74	0·77
December..	1·78	1·85	1·57	1·61	1·14	1·43	0·93	0·90
Sums ...	30·09	30·72	28·08	29·35	23·85	(22·54)	...	...

At the end of the month of January it was suspected that the gauge at the height of 193 ft. had leaked ; it was therefore replaced by a new gauge. The gauges at the height of 205 ft. 6 inches were partly covered over during the months of July and August, the anemometer then being in course of alteration.

JAMES GLAISHER.

[Space on this and the next page has been kept until February 16th, for the reception of Mr. Bates' Observations, but as they have not been received, I am sorry to be compelled to send it to press blank.]

RAINFALL AND METEOROLOGY

OF

1866.

ON THE METEOROLOGY OF 1866,

WITH DETAILS OF THE PRINCIPAL PHENOMENA.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; T S for Thunderstorm; R for Rain; H for Hail S for Snow.

JANUARY.

1st.—T S at Bideford.

2nd.—Gale over the Midland Counties. Pressure at Wisbech 15lbs. per square foot. Highland Railway slightly blocked with S.

3rd.—Gale continued in places. At Liverpool pressure 32lbs. at 2 a.m. Very rough in the Channel. T at Selborne.

4th.—Another S.W. gale, with R and high temperature.

5th.—Temperature in London 50°; at Montreal —22°; and the max. of the day —12°.

8th.—Terrific gale at Carnew (Co. Wicklow) about 4·15 a.m.; reached its max. at Liverpool at 7·30 a.m., when the bar. was down to 28·89, and the pressure reached 31lbs.; the direction there was S.E., veering to W. at 7 a.m. Isle of Wight: Gale at its height from 2 to 7 a.m.; Hull at 9·30 a.m.; Chatham, abated about 5 p.m. At Wisbech pressure reached 20lbs. Much damage was done throughout the country. The following are examples: London, Fleet Street —Roof blown off a house; Woolwich—Two stacks of chimnies on the new Herbert Hospital blown down about 3 p.m., damage £600; Hull—several houses blown down; Leeds—an archway blown down; Barnsley—Roof blown off old station; Wakefield, Penistone, and neighbourhood, many telegraph posts blown down.

9th.—Gale had passed on towards Norway, where the bar. fell to 28·40; in the North of Scotland it was about 28·50; highest in the South of England about 29·30, and at Moscow the air was so heaped up that the pressure was 30·30; Westward also, in lat. 47° N. lon. 30° W., the bar. was at 30·15 Monmouth—blowing hard; Weymouth—boisterous from W.N.W., with frequent L in S.E.; a T S at Frome, and L seen from Linton Park and Haverfordwest.

10th.—Morning generally tolerably fresh and fine, but towards evening a gale began from S.E. in Cornwall and Devon, which increased as it retrograded to E. and N.E. It was accompanied first by R, and subsequently (about 11 p.m.) by S, and was perhaps one of the most violent and destructive storms of the year. Throughout Cornwall and Devon prostrate trees might be counted by hundreds (probably by thousands, since Mr. Huyshe, of Cullompton, alone lost more than 100,) and the wrecks in Torbay were unprecedentedly numerous. The S was very deep at Liskeard, 15 inches on the level and 15 feet in drifts. Sixty-two sheep were buried in the snow near Launceston. Frost set in at Edinburgh in the afternoon, and L was seen from Linton Park in the evening. Gale and T S in the South of France, trees and telegraph posts blown down; house struck by L, &c.

11th.—Much of the S mentioned yesterday fell in the early hours of this day; it was excessive at most places south of lat. 52°, drifts of 10 or 12 ft. being quite usual. In London it began to R at 1 a.m., turned to S at 3 a.m., and by 9 a.m. was 8 inches deep. It appears to have fallen most heavily along a line from London to Exeter, being for instance comparatively trifling at Swansea, Bedford and Lynn on the north, and Brighton and Dover on the south. The S was unusually dense, perhaps twice the usual specific gravity, and to this and to repeated

regelation, accompanied and followed by the remnant of the gale of the 10th, is to be ascribed the serious and widespread injury to trees and telegraph posts which resulted; as far as the telegraph was concerned, the greatest since its general adoption. Most of the trains going south and west were also disarranged by the double obstruction of heavy S drifts and prostrate telegraph posts. Crawley, Sussex: The snow on the 11th was the most extraordinary thing I ever saw. It came down so suddenly and heavily, and mixed with rain, and froze on the trees as it fell, so that it made the greatest havoc and destruction. I think I am speaking considerably within compass when I say it will do me £500 damage, confined almost entirely to Scotch firs.

13th.—Floods from melted S, especially at Tottenham; Edmonton; Rickmansworth; Lewisham; Dartford, church flooded; Bath, greatest flood for 25 years, river rose 14 ft.; Exeter, great flood in the Exe, several persons drowned, scores of sheep washed away, and hundreds of trees carried down; Tiverton, greatest flood in the Exe for 20 years; Frome, highest flood for 35 years; Maidstone and Tunbridge, great floods.

15th.—Gale at Sandwick from 6 a.m to 4 a.m. 16th. Total horizontal motion 1000 miles; for 8 hours it averaged 50 miles per hour.

17th.—Laggan (Inverness), temperature very high, 50° at 11 p.m.; snow fast disappearing, and the Spey consequently much swollen.

19th.—Eccleshall, a beautiful butterfly caught in the street.—*Stratford-on-Avon Chronicle.*

Apples Produced in January—Specimens of apples grown in the open air, and which have just been taken from the tree, were left at this office yesterday. They are the largest we have seen at this season, and were produced in the garden of Joseph P. Smartt, Esq., of Kilmainham.—*Irish Times*, January 27th.

The remainder of the month was not marked by any phenomena calling for special notice.

FEBRUARY.

3rd.—T S in Cornwall and South Devon about 11 a.m.; Rhayader at 2.30 p.m.; Deanston at night. From many accidents we select the following: Off the Land's End the Austrian barque Fortunata was struck by L, and six of the men thrown from the foreyard to the deck; they were all more or less burnt, but their clothing was uninjured. The Castle on St. Michael's Mount was struck about 10 a.m. The parish churches of Chacewater and St. Mabe, near Falmouth, were struck and seriously damaged.

4th.—T S reported from all parts of the country—earliest from Yorkshire stations, and gradually later towards the S.W. of England. [We do not include the following, because intervening stations do not report any storm, and therefore the identity of the storm is doubtful, if not improbable:—Portree, T S 2 to 3 p.m.; Killaloe, T S at 4 p.m., L at night; Doo Castle, T S at night; Waringstown, T S with H; Dublin, sheet L at 8 p.m. in S.] At Halifax the storm began about 5.15 p.m., and it was accompanied by a gale (25lbs.), L continued till nearly 9 p.m.; Thicket Priory, very severe T S, began at 5.30 p.m., and for fifteen or twenty minutes raged more fearfully than any remembered here; York, T S with H about 6 p.m.; Derby, severe T S with H at 6 p.m.; Rugby, violent T S between 6.30 and 8.30 p.m.; Bromsgrove, T S with H at 7 p.m.; Rhayder, T S and vivid L at 7 p.m.; Wolverhampton, T S from 6.30 to 7.30 p.m.; Lincoln, violent T S; Hunstanton, T S at 8 p.m.; Wisbech, T S, much L at 6 p.m., gale (15lbs.) at 8 p.m; Abercarn, T S at 8 p.m., with a gale of wind: Pentyrch, gale in evening with sheet L, and subsequently a T S; Culford, T S at night; Banbury, T S at 8.30 p.m., L very blue; Northampton, T S at 8.30 p.m; Hereford, T S began at 7.45, much H; Camden Town, T S at 10 p.m.; Salisbury, violent T S with H 11 to 12 p.m.; Barnstaple, violent T S between 11 and 12 p.m.; Great Torrington, violent T S from 11.30 to 12.30 p.m.; Shaftesbury, violent T S from N. The only accidents reported are, Knottingley, a stable set on fire by L; at Banbury several persons injured but none killed, and (at 1 a.m. 5th) a house struck and much damaged at Tavistock.

4th–5th.—Laggan: Very dark and stormy, much R; at 11 p.m. gale so awful that several houses were blown down; many people stayed out in the storm till 2 a.m. for fear of their houses falling upon them; river in tremendous flood.

6th.—Westerly gales in many places; very violent on the West of Scotland. At Hartlepool and Stockton gale most severe about 3 a.m. At Hull the bell turret of St. Luke's Church was blown down at 1 p.m. At Ayr there was a heavy squall from W.S.W at 10.10 a.m.

7th.—T S S and heavy H showers in Yorkshire, Worcestershire, and parts of Scotland.

8th.—Hunstanton, loud T at 11 a.m.; Bideford, T S at 11 p.m.; Ayr, T S at night.

11th.—A heavy gale (considered truly cyclonic) passed across the southern part of England on this day, and the barometers at most stations in the Midland and Southern Counties fell lower than for many years, but they did not fall lowest (28·40) at the points where the gale was most destructive. At Pen-y-maes (Brecon) it began from E.N.E., and backed itself to N.W. by sunset. This was almost the edge of the storm in that direction, as at Cardiff, though the bar. fell to 28·55 there was no gale. In Truro several houses were unroofed. The extreme east of Devon and the whole of Dorset suffered considerably. Wainsford, Lymington: Very heavy gale from S.W., changing to N.W.; at the height it blew quite a hurricane; all the roads were blocked with fallen timber. To give some idea of the force of the wind, I may mention that there was a small copse near here, the squall went right through it, cutting out a roadway (wide enough for two waggons to drive abreast) as clean as if an axe had been used for that purpose; there was very heavy R, but I don't think the amount (·73) correct; much must have blown over the gauge. The greatest havoc was in the Isle of Wight about 2.30 p.m., when very many large trees were uprooted, and chimnies, tiles, slates, and roofing blown in all directions. A barn was blown down at Selborne, and many chimnies in London, (about 5 p.m.,) Chatham, and intermediate places. A T S occurred at Orleton about 7 p.m., and at 7.28 an elm tree was struck by a vivid flash of white L. At 8 p.m. the storm passed off to S.E.

20th.—A bird's nest found with two eggs in it.—*Stratford-on-Avon Chronicle.*

21st.—Brilliant Aurora Borealis, and at 8.30 p.m. a very fine meteor seen from stations between Wick in Caithness and Halifax in Yorkshire.

22nd.—T S in north of Scotland.

MARCH.

1st.—Laggan, keen frost, no children could come to the school; Bideford, S; coldest day in the year at many stations.

4th.—Skating in Kensington Gardens. A fall of natural snowballs at Wolverhampton at 4.30 p.m.; they were from ½ inch to 1 inch in length; on reaching the ground they rolled along, and then broke into fragments.

6th.—Sharp frost in many places. T S, sleet, and S at Wigan.

7th.—Rugby, S 1½ inches deep. T.

8th.—Fall of snowballs at Camden Town, being the fourth consecutive year in which this phenomenon has occurred on the same date. It also occurred on the 8th of March in 1857, 1858, 1859, and 1860.

9th.—At 2 a.m. sharp shock of earthquake at Orkeld, near Drontheim, Norway. At 1.20 a.m. the North Unst Lighthouse in the N. of Shetland was violently shaken by an earthquake. (Allowing for difference of time, these shocks would be nearly simultaneous—probably were absolutely so.)

10th.—Excessive S in Perthshire, 3 ft. deep on the level.

15th.—Gale in Devon and Somerset.

22nd.—Ixworth, S, H, and sleet.

23rd.—Gale general throughout the country; not much damage except to trees. Wisbech, pressure 15½lbs. at 9 a.m.

APRIL.

2nd.—T S at Maidstone.

6th.—Goodamoor, much L in N. Wanlockhead 6 inches of S.

7th.—Devizes, the land very heavy; no spring corn sown till very late.

13th.—Wells (Norfolk), aurora.

14th.—T S with H at Dunmow. T at Rugby.

15th.—Kirkby Lonsdale, vegetation backward; thorn and hazel burst the buds, and a few sycamores and chesnuts in leaf.

18th.—Bridport, chesnut in leaf.
27th.—High temperatures in greater part of England.
28th.—Bridport, lilac and double cherry in blossom.
29th.—Otterbourne, min. temp. 24°.; Brecon, fresh S on mountains.
30th.—Sharp frost; Min. in air 27·0 at Appleby, Leicester, and 27·8 at Nottingham. Ixworth, flakes of S at 11 a.m. Fruit blossoms damaged; potatoe tops frozen.

MAY.

1st.—S showers general; *e.g.* in Dublin, Worcester, Devon, Somerset, Hants, and York.
3rd.—Kettering, min. temp. 23°·2, and the trees covered with hoar frost. Dartmoor, heavy fall of S; Dunmow, H and S; Bromsgrove, Culford, Banbury, Orleton, and Dunmow, T.
4th.—T S at Maidstone; T at Wisbech, Culford, and Orleton; Barnstaple, S and H.
9th.—Carnew (Co. Wicklow), T and gale.
11th.—Gale in London at 6 p.m., H at 7 p.m.; Waringstown, heavy H in evening; Manchester, T.
12th.—T S at Swaffham (Norfolk) at 11 a.m.; also at Bath and Calne. T at Culford and at Frant at 3 p.m.
19th.—Ice at Taunton $\frac{1}{8}$ of an inch thick.
25th.—In Yorkshire the weather has been trying of late, dry, hot days, and frosty nights.
26th.—T S at Calne, and in the Isle of Sheppey, where a coastguardsman was blinded by the L. T was also heard at Selborne.
27th.—T S at Maidstone and at Swaffham, heavy from 11 a.m. till noon. T at Wisbech, Wells (Norfolk), Culford, and Orleton.
31st.—T S at Maidstone and Banbury. T at Bromsgrove and Orleton, accompanied by excessive R at the latter place, amounting to 1 inch between 1 and 2 p.m. At Ripon the min. temp. on grass was as low as 16°·7.

JUNE.

1st.—T S in south-western counties in the afternoon, at Calne at 4 p.m., and Hereford at 6 p.m. At Mountain Ash (Aberdare, Glamorgan), a man sitting at his own door felt a flash of L pass over his knees, imparting to them a feeling of warmth; his dog sitting by his side howled mournfully for a few seconds, and fell dead. On examination, the only indication of its having been struck was a small discoloration on one of its fore feet.
4th.—T S all day long in different parts. The first began between 3 and 4 a.m. at Margate, Dunmow, and Wisbech, (where a second T S occurred about 10 p.m., and two horses were killed.) Ixworth: Distant T at 5 a.m.; came overhead at 7.30 a.m., excessive R; at 9 a.m. a short respite; T S returned by 10 a.m., and further heavy fall of R, causing a flood; by 11 a.m. 1·77 had fallen; altogether it was the most violent storm ever remembered here; trees, houses, and sheep struck in this parish, and a woman killed and three houses burnt to the ground in the next. Two cottages were burnt down at Rushford (Suffolk). Much damage in Suffolk; near Attleborough, about 10 a.m., a man was struck, a cow and donkey killed, and several telegraph wires melted. Several sheep were killed at Ixworth; a wheat stack ignited at Holbrook; a woman killed at Troston at 9.15 a.m., the L came down the chimney and struck her on the breast, but did not burn her, and scarcely left any mark. At 10 minutes to 1 p.m. a farm labourer was killed in a field at Bennington (Lincoln), his steel watch chain was melted, but he was not burned. There was a heavy T S at Dover and Folkestone about 2 p.m.; at Paris at 9 p.m., and about midnight in Yorkshire.
5th.—Halifax, T S about 2 a.m. at Dean Head, on the hills W. of the town. The L entered a house, struck at a woman's wedding ring, and broke her finger, several articles of furniture, and 145 squares of glass. Two boys were also struck at Huddersfield. At Penkshull (Newcastle-under-Lyne), during a violent T S a house was struck, the L passed down the bedroom chimney, destroyed the fireplace, and set fire to the bed. In the early morning (1.45) the L struck a house at Heworth Moor, York, entered a bedroom, shivered the door post, ran along the bell wires,

and broke two panes of glass in the kitchen. In the adjoining house it melted a gas pipe and lighted the gas.

15th.—Heavy H at Hawick, also at Lochbroom, with sleet and bitterly cold wind.

16th.—T S at Middlesborough, Banbury, and an oak tree set on fire by L at Wroxton Park. T was heard at many places. H fell in places in the evening. Trowbridge, remarkable H storm at 10 p.m., stripping leaves off the trees and seriously injuring potatoes and beans. In the North of Ireland, and especially in Scotland, the fall was considerable, as evinced by the following notes :— Lochbroom, hills covered with fresh S ; Laggan, hills covered with fresh S ; Ben Lawers covered with S.

SNOW IN JUNE.—A correspondent at Brora says—We had rather a heavy fall of snow on Saturday. The hills were covered, and the village streets had quite a wintry appearance. Snowballing was engaged in to a considerable extent—rather a rare sport at this season.—*Northern Ensign.*

19th.—Hawick, frost in morning ; Deanston, min. tem. 30·3.

20th.—Magnificent meteor during bright sunshine at 10.45 a.m., seen from Folkestone, Boulogne, and other places, at several of which the report of its explosion was heard.

21st.—Dunmow, violent T S at 10 p.m. ; Strood, very heavy H storm, many windows broken.

22nd.—Leyton, severe T S, house struck half a mile hence ; Linton Park, T S ; Norwich, T S in evening ; man killed in a house in Coburg-street while going up stairs ; only mark a small brown one on his chin.

27th.—The violent and destructive T S S of this day have been so fully described in the *Meteorological Magazine* that a repetition here is deemed unadvisable. They appear to have broken out almost simultaneously over the southern counties of England, which had for some days previously been unusually heated.

28th.—The storms, though so severe, had not restored the atmosphere to its normal state, and there were several heavy T S S on this day, one, for instance, passed over Uckfield, and the following were among the results : A horse struck dead on the W. side of the parish, and the man who was leading it was knocked down, and felt great numbness in his arm for some hours ; two other men knocked down but not injured ; a barn set on fire and consumed, also an outhouse and two stacks, and an elm tree was struck and a semi-circular groove cut in it for 10 or 12 feet. Kirkby Lonsdale : At 11·30 a.m. the sky became overcast, and about noon a terrific T S came up, with H ½ an inch in diameter, and very heavy R.

30th.—T S S almost, if not quite, as destructive as those three days previously. They are not reported until the afternoon, but then seem to have been general and simultaneous in all parts of England. We can hardly attempt to classify the information, save perhaps roughly according to time. At 1.30 p.m. there was a heavy T S at Preston, though not extending 2 miles therefrom, and a house damaged by L at Fishwick Bottoms. T reported in the W. from Retford at 1 p.m. In London there were a series of T S S from 1 to 6 p.m., with excessive H and R —the most violent storms for some years. A man was killed at Wormwood Scrubs ; another in an open cart in the Mile End Road was stunned ; a house was struck in Haverstock Hill ; two houses were struck simultaneously, one in Bessborough Street, Pimlico, and another in Bessborough Gardens. At Pinner a large elm tree was struck. At Rickmansworth a cow was killed, and at Frome an oak tree was blown down, and a horse killed in a stable. In Yorkshire several accidents occurred. At Sherburn, near Pontefract, the L struck a tree under which were two men ; one escaped unhurt, the other was struck down ; the L grazed his shoulder, tore his trousers into shreds, and injured his boot ; he recovered. At Scarborough, at 3.30 p.m., the L struck a house in St. John's Street, and passed through the party wall into the next house. Gothland : the ground white with H ; several sheep killed under a tree. Cawthorne, near Barnsley, several cows killed in the afternoon. Grimsby, several houses struck.

SINGULAR PHENOMENON.—A correspondent sends us the following account of a wonderful phenomenon that has occurred in the neighbourhood of Cawood, Yorks : —On the 16th, about noon, at Ozendyke, near Ulleskelf, a singular-looking cloud, of the shape of an elephant's trunk, appeared in the air just overhead. It was wide

at the top, and tapering off to a very small point at the bottom, within 150 yards from the earth. This appearance continued about fifteen minutes, all the time revolving very rapidly, and making a noise like a large manufactory at work. It was apparently extending and getting nearer to the earth with its tail, when all at once it seemed to burst and emit what we thought water, causing a great mist, though it was more like a large steam-pipe when the steam is let off. Immediately after there was an alarming whirlwind, or tornado, tearing up everything before it. The first thing we saw it strike was a large poplar tree in Mr. Farrar's farm, which it nearly stripped of its branches, breaking off the boughs, many of which would weigh more than a quarter of a ton each. These it carried more than 100 yards high, and afterwards dropped at a distance of 100 to 300 yards, forming a circle round the tree. It afterwards went in the direction of Mr. Farrar's orchard, where it did great destruction to the fruit trees. These it twisted round like a cork-screw, although many of them are as thick as a man's body. It afterwards passed in the direction of the river Wharfe, which it crossed, taking a large quantity of water up to an immense height. After crossing the river it laid the meadow in Bolton Ings (about 100 yards wide) quite flat in a straight direction. It then re-crossed the Wharfe, near Bolton Clough, and was seen again to take a quantity of water up higher than the loftiest tree in the neighbourhood. All this took place in the presence of eight or ten people.—*York Herald.*

A WHIRLWIND.—My attention was directed between 12 and 1 o'clock to-day to a strange-looking flexible column, apparently of smoke, about a mile distant, which stood out in marked relief against a large thunder-cloud in the eastern sky. I have since learnt that it was a terrific whirlwind, which has done considerable damage as it passed through the parish from south-west to north-east. At one solitary farmhouse in the track I found that large pieces of the roof had been removed, the tiles having been taken off by hundreds, that a cart loaded with hay had been upset, and so great had been the force of the wind that even a heavy wooden stand, common in farmyards, and weighing several cwt., had been lifted out of the manure in which it was deeply imbedded and carried to a distance of 15 yards. The track of the whirlwind, about 50 yards wide, was quite plain, the corn being laid flat on the ground over which it passed. Large haycocks were carried into the air, even oaks were broken and the tops of trees and large stones carried to a considerable height, and as it it passed over the river Wharfe, I hear from an eye witness that tons of water were swept up into the clouds. The people in the neighbourhood were much alarmed, especially as it was seen from a great distance, and the farmer whose place I have mentioned tells me that on hearing the noise, which has been described to me as that of a train, he turned and ran quickly towards home, judging, from the appearance of smoke, that his house was on fire. As such whirlwinds are, I believe, of very rare occurrence in England, I think it possible you may deem the one I have described to be worthy of record.—N.S., Kirby Wharfe, near Tadcaster, June 30.—*The Times.*

JULY.

1st to 5th.—T S S occurred at detached stations almost incessantly, but they do not appear to have been either violent or destructive.

6th.—Heavy T S S along the Thames valley, (apparently from W. to E.,) with excessively heavy R. At Eton at 10.15 a.m., ·40 in half an hour, and at 3 p.m., when ·30 fell in 10 minutes. At Camden Town ·20 fell in seven minutes between 6.20 and 6.27 p.m. A violent T S passed over Margate about 11 p.m.

13th.—Violent T S at most stations north of the Tyne. The observer at Otterburn (Northumberland) reports it as lasting three hours, and doing much damage to cattle and farm buildings on both sides of the Border. He estimates the number of sheep killed at 100. The storm was felt at Laggan, where it was most violent about 6 p.m., no less than 1·16 in of R falling in 45 minutes, and as far north as Lochbroom, in fact we may probably say Sandwick, since a heavy T S is reported thence at 3 to 6 a.m. 14th.

19th.—T S in West of France about 1 p.m., and a gale at Middlesborough from the N.E.

28th.—About 7 p.m. a heavy and general R commenced, lasting about 24 hours.

AUGUST.

1st.—Hard frost at Laggan. Ther. 28°.

4th.—Gales in various places. At Wisbech 12lbs. per square foot; at Sandwick 40 miles an hour from 3 p.m. 4th to 3 p.m. 5th.

8th.—Wolverhampton, at 8.15 p.m., a fine meteor, of the apparent size of an orange, fell slowly, and appeared to burst about 100 feet from the race-course.

15th.—Fresh S on Ben Nevis.

16th.—Preston, an extraordinarily violent storm for 10 minutes about 5 p.m. The most marvellous storm of all is that described in the three following paragraphs:—

SEVERE HAILSTORM.—A correspondent at Birkenhead, Crathes, writes:—"A severe hailstorm, accompanied by thunder and lightning, broke over Deeside on Thursday afternoon. For the last fortnight the weather in the district has been very wet, scarcely a day having passed without heavy showers of rain falling. Tuesday and Wednesday last formed an exception. The mercury gradually rose during these days, and hopes were entertained that we might have warm and dry weather to bring the crops to maturity; but on Thursday morning the mercury began to fall, and stood at 28·8 several hours before there was the slightest indication in the sky of the coming storm. By 1 o'clock, a dark cloud of immense size overspread the sky, and rain began to fall. By 1.30 the rain had got much heavier, and was mixed with hail. Then followed thunder and lightning in rapid succession, and extremely heavy falls of hail, or rather pieces of ice, of a beautiful conical shape, the lower part as clear as crystal, the upper cloudy and white. The base was convex in form, and the average length five-eighths of an inch. The storm lasted about two hours, and appears to have been heaviest near Birkenhead and towards Crathes Castle. The depth of the hail was, on an average, 3 inches at Birkenhead, and for a considerable distance along the road and railway 4 inches. At Banchory-Ternan it was somewhat less, and towards Aberdeen there appeared to be rain alone. Where blown together by the wind the depth of hail was 3 feet and upwards. Several houses in the neighbourhood were flooded, and much damage was done in the gardens and in the fields. The leaves were stripped off trees and flowers and the ears of corn off their stalks. The country round has the appearance of mid-winter. Mr. Malcolm, farmer, North Brae of Durris, had a mare and two calves killed by the lightning while in the field."—*Scotsman.*

THE LATE STORM AT BANCHORY.—It appears that the storm which passed over Banchory and its neighbourhood on 16th August, and which was noticed in our columns at the time, had been still more severe than the first brief and meagre accounts indicated. At the farm of Maryfield, on the south side of the Dee, occupied by Mr. Ogilvie, out of 56 acres there are not two quarters of grain remaining; the crop being as clean thrashed as any machine could have done it, and the straw is so much damaged that cattle will only eat it when compelled by hunger. His turnips, also, about 20 acres, are completely destroyed. The farm of Woodend, Crathes, on the north side of the river, seems to have suffered equally, and also several fields belonging to Sir James Burnett. The garden at Crathes is completely destroyed for a season. Of the flowers, which were in their glory, not one is left, and the vegetables are useless. On the evening after the storm 5 or 6 loads of broken ice and hailstones were carted into the ice house at Crathes. On the Sunday following it was still lying in the shade to the depth of 2 inches. The fury of the storm extended about 4 miles along the course of the river, and about 2 miles from north to south.—*Times.*

PHENOMENA CONNECTED WITH THE RECENT THUNDERSTORMS AT BANCHORY AND DURRIS.—A few days previous to the terrible and destructive thunderstorm which recently visited the above districts, the cirri, or "feather clouds," were seen for a time, and then during the two days which immediately preceded the storm, the clouds assumed a most interesting appearance, the cumuli prevailing during the day, while towards evening they stretched out into parallels, having a dark appearance, and threatened to rain, but did not. On the morning of the thunderstorm few clouds were to be seen, the western sky became blue, indeed to such an extent almost as one might expect to see at Naples. Towards noon the western sky became overcast, and by 2 o'clock it became still darker, in consequence of a large *nimbus* cloud in the west; and then all of a sudden the lightning flashed, followed by

rapid and most terrific thunder-claps, which in one or two instances made the windows to shake and the houses re-echo the report, during which torrents of rain and showers of hailstones fell, showing "the temperature of the stratum of air," through which the rain descended, to be less than 32 degrees, and the irregularity of the "atmospheric layers," before hail of such enormous size could fall as did on this occasion. (But more shall be said regarding these wonderful hailstones at the proper time.) For a short time the thunderstorm and rain in the Durris district ceased, but soon commenced again, while the *nimbus* cloud in the west became so dense that the houses were rendered as dark as on a very rainy and cloudy evening in winter. The shape of the lightning seen was wonderfully striking, one flash having the appearance or form of a large boot-hook, about 4 feet in diameter; another that of a rainbow; and a third exhibited a "forked" form ("not in reality one continued line, and simultaneously luminous"), and darted from north to south with a rapidity and brilliancy combined sufficient to kindle in the bosom of every thoughtful observer feelings similar to those which the celebrated Humboldt felt while he witnessed "terrible perturbations" of the ground in an earthquake, when he states, "A single instant annihilates the illusion of our whole previous life; we feel the imagined repose of nature to vanish, and that we are ourselves transported into the realms of unknown destructive forces." During the time which these wonderful flashes of lightning were seen—followed by tremendous rolling sounds of thunder—it rained very heavily in the west and to the south of Banchory in a most peculiar and interesting manner, especially to the student of natural philosophy. After each thunder-clap, clouds like smoke, as it rolls from the mouth of a cannon, burst forth from the great nimbus cloud, and then in a few seconds fell in rain streams, which commenced near Upper Banchory, proceeding in a southerly or north-easterly direction—in the form of a semi-circle—crossing the Grampians, becoming more attenuated as they advanced, and terminating in a heavy shower within a few miles of, if not reaching to Stonehaven. At the same time there was an inner semi-circle, parallel to the first, which commenced on the north side of the Grampians—several miles to the west of Westertown, and moved in a northerly or north-westerly direction, exactly opposite to the other, but how far it proceeded the writer has not been able to ascertain. Simultaneously with these, and still more wonderful and interesting, there was to be seen passing over the woods of Crathes House (the seat of Sir James Burnett, Bart.), a complete moving circle—say from 200 to 300 yards in diameter, composed of huge hail streamers—each streamer about the thickness of an oak tree, pouring hailstones of an extraordinary size, and of a triangular shape, some of them measuring an inch in length. By moving round and round, and so passing over the same space so often, explains how so many of the farmers have nearly lost all their crops, which demand the aid and sympathy of the county. While these large hailstones completely struck off (on some farms) nearly every grain of corn, it seems wonderful that the corn stalks were left standing, while the ears were as bare as if they had come from the thrashing-mill. On reading an account of the destruction done to the corn, potatoes, turnips, and trees in this district, by hail of such enormous size, many may have difficulty at first in giving credence to it, but when it is stated that the writer has in his possession *three apples* which were chipped off during the storm, having hailstone marks that respectively measure one-quarter, one-half, and five-eighths of an inch in length, all doubt will be removed. It is now certain that this huge moving *circle* of hailstone-streamers was the cause of which the great amount of damage (though not the whole of it) done to the crops, &c., over which this circle passed, is but the sad and disastrous result; because, while heavy showers of hail fell in other places, there was no serious damage done to the crops, except in those places over which it passed. Those acquainted with the district will understand this at once, when it is stated that, when seen by the writer, it was moving slowly along the woods of Crathes House towards the Dee, in the direction of the farm of Northbrae—and will see how the almost total destruction of the crops in the intervening district happened. Perhaps some scientific observer will favour your readers with some remarks regarding the unusual circumstance, namely—the absence of the slightest mark of any kind on the three animals killed—save that they were swollen to an enormous extent—the peculiar shape, the large size, the immense quantity of the hail, and that in the month of August. This will supply what is awanting in the above narrative.—*Aberdeen Herald.*

20th.—T S at Ayr ; a labourer killed on the road by L.
24th.—Strood, violent local H storm at 2 p.m.
28th.—Excessive R.
29th.—Continuous R, floods in N.E. of Yorkshire. Severe T S in Devon. Near Hatherleigh it washed away roads, crops, &c. A postman was drowned in a stream usually only ancle deep.
31st.—T S in Scotland. Three women and a man sheltering under a tree near Harthill, on the Edinburgh and Glasgow road, were struck, and all more or less hurt, the man most. Floods in Leicester, Nottingham, Cornwall, and Devon. On Dartmoor considerable damage. The ancient and picturesque bridge over the Plym at Shaugh was swept away, also a mill. Corn standing in water in many places.

SEPTEMBER.

1st.—T S in the Border Counties.
2nd.—T S S in various places. H storm in Ireland.

EXTRAORDINARY STORY.—A singular instance of the effect of lightning occurred at Whalley Range, near this city on Sunday afternoon. Three boys named Edwards, Greenhough, and Jones, the first two residing in Cedar Street, and the last in Erskine Street, were overtaken by the severe storm which raged during the greater part of Sunday, and took refuge under a tree having large overspreading branches. They had not been long in shelter when a vivid flash of lightning illuminated the atmosphere, and the lads were more or less stunned by the force of the shock. The electric fluid seemed to have circled round the tree in a curiously serpentine fashion, and what was still more singular was the fact of one of the boys (Edwards), who had been seriously affected, presenting on his left side the perfect image of a tree, the fibres, leaves, and branches of which were represented with photographic accuracy. The impression of the tree was reproduced in a less determined form on the lad's right side—that which it would seem had been less exposed to the power of the lightning ; but both pictures graduated from the knee, terminating and joining at the apex of the chest. Jones appeared to have had a still more narrow escape from death, as the destructive fluid was attracted by his scarf-pin—which was twisted in an extraordinary manner—and traversed his person, scorching him severely.—*Manchester Courier.*

LIGHTNING FIGURES.—Every summer we read paragraphs in the papers respecting the wonderful effects of lightning in producing on the skin of persons struck by it an "exact portrait" of the tree under which they have taken shelter. In your impression of to-day a case is stated as having occurred at Whalley Range, near Manchester, in which the lightning produced on the body of a boy "a perfect image of the tree" under which he stood, "the fibres, leaves, and branches being represented with photographic accuracy."

Statements of this sort are so numerous that M. Baudin, in his *Treatise on Medical Geography*, proposed a new term—namely, Keraunography ("to write with thunder") to include these and other figures caused by lightning, and M. Poey, in a treatise published in 1861, collects 24 such cases, and seeks to explain them by a real photo-electric action, in which the surface of an animal is the sensitive plate, the tree the object, and the lightning the force that impresses it.

It would be easy to show that these ramified figures are sometimes produced on the bodies of men and animals when no tree is near, but so strong is the notion that the lightning impresses the portrait of a tree on the animal that a tree from a distant wood is sometimes made to do service, as in a case noticed in a report of the British Meteorological Society for 1857. One or two medical men, who have observed such cases, refer these figures to an eruption of blood into the vessels of the skin, producing an effect similar to that of an ejection. About two years ago a case was reported in the *Lancet* in which ramified figures were traced from the trunk down both limbs of the patient, so regular as to lead to a conviction in the mind of the medical man who wrote that the phenomenon must have been regulated by some fixed law.

In dealing with such statements as these, we must of course admit that a figure more or less minutely ramified is often found on the body of a patient struck by lightning.

It is not generally known, however, that such a figure is really produced with every flash of lightning and with every discharge of a Leyden jar. Most scientific men are aware of the fact, and that such figures can be made visible. If a thin sheet of window glass, about 4 inches square, be held between the knob of a charged jar, and the discharging rod, the discharge will pass over the surface nearest the jar, turn over its edge, and so get to the discharging rod. On holding the glass up to the light no trace of the discharge will be seen: but on breathing upon the glass we get a remarkable ramified figure, consisting of a trunk, from which proceed a number of branches, covered with minute spray, the whole figure presenting a striking resemblance to a tree. In some cases the discharge bifurcates, and even trifurcates, when we have two and three trunks, each accompanied by its own branches and spray. Should the glass be too thick, the charge will not pass; but we get some of its minor details, such as the branches and the spray, representing, in fact, those ramifying feelers sent out by the electricity to prepare the line of least resistance along which the principal discharge takes place. These are the lines which produce the sensation of cobwebs drawn over the face, which sailors describe as the forerunners of the ship being struck. In the experiment just noticed the discharge burns away portions of the organic film which covers all bodies exposed to the air, and the breath condenses in continuous streams on the portions so burnt and rendered chemically clean, while on other parts of the glass the breath condenses in minute globules.

In a paper read by me before the physical section of the British Association at Manchester in 1861 I attempted to show that the ramified figures so often observed on the bodies of animals struck by lightning are not derived from any tree whatever, but represent the fiery hand of the lightning itself. I exhibited some of these figures, as produced by the discharge of a Leyden jar, and it was generally allowed that the resemblance to a tree was sufficient to lead an ordinary observer to connect the ramified figure found on the body of a person struck by lightning with the tree under which he sought refuge.—C. TOMLINSON, King's College, W.C., Sept. 8. —*The Times.*

5th.—T S in Somerset and Worcester. Excessive R in the neighbourhood of the Bristol Channel. See Table of Maximum Falls. Lee Moor (Dartmoor), greatest floods for 30 years. Earthquake at Kodiac (Russian America), at 4 p.m.; three houses and most of the chimnies thrown down.

10th.—Laggan, severe T S in the distance.

11th.—Rather heavy gale at Dublin and some other places.

13th.—Violent T S in Jamaica; stores of rum ignited.

13th.—Earthquake at Branscomb, at Budleigh Salterton, and one or two other places in Devon.

14th.—[Probably this date should be 13th.] Earthquake at Paris, Rouen, Nantes, and other towns in France.

15th.—T S in the Midland Counties, and in the North of Ireland in the afternoon. A girl killed by L at Wigan.

16th.—T S with H at Calne at 3 p.m. Fine aurora at night.

22nd.—Wroughton (Wilts). This afternoon a violent storm of R, accompanied by T and L, passed over this village and neighbourhood. The L, which was of that description known as sheet L, struck a large tree standing in a field in the occupation of Mr. Reuben Webb, completely tearing it to pieces. Unfortunately, just previous to the tree being struck, a valuable cow had taken shelter under it, and, of course, met with instantaneous death. The carcase of the poor beast shortly after it had been struck presented a curious sight, it having swollen to an extraordinary size, and had to be opened to prevent its bursting; it also became quite putrid in the course of an hour. The bark of the tree appears to have been torn off in a mass, and parts of it were found at a distance of eighty yards.

21st.—T S with heavy H on west coast of Scotland.

23rd.—Gale in Ross and Aberdeenshires.

OCTOBER.

2nd.—Terrific cyclone at Nassau (Bahamas.)

Aurora seen on 3rd, 7th, 9th, 10th, and 13th.

14th.—Lunar rainbow at Dover at 6.30 p.m.

17th.—Gale at Sandwick from 6 a.m. ; lasted all day, with an average velocity of 40 miles an hour.
24th.—Dublin, a very brilliant meteor, visible in daylight at 5 p.m.
28th.—Culloden, H shower.
29th.—Violent gale on the west coast. T S at Sandwick.

NOVEMBER.

2nd.—Linton Park, L.
3rd.—L at Banbury and Lynn.
5th.—L at Linton Park ; T at Fort William at noon ; Sandwick, gale, 66 miles per hour from 1 to 6 p.m.
6th.—Kirby Lonsdale, found a large ripe wild strawberry.
7th.—Heavy S.W. gale at Fort William and Laggan.
8th.—Aurora at Selborne. Heavy gale in Scotland ; at Sandwick 67 miles per hour. Laggan, ground covered with S.
11th.—T S at Sandwick ; a house struck, and the sole stripped off the shoe of one of the inmates, yet he was not hurt.
13th.—Buxton, violent T S with H and R in the evening ; Preston, heavy H showers ; Dover, L in the N. all night ; Leicester, L and R ; Nottingham, T and L ; Calne, L in S.E.
13th, 14th.—Brilliant display of meteors between 11 p.m. 13th, and 5 a.m. 14th ; total number seen about 8,000.
14th.—Wisbech, T S at 1.10 a.m., and a fresh wind ; pressure 5lbs. per square foot. Laggan, gale from N.W.
15th to 17th.—Excessive rains in all parts of the country ; S throughout Scotland, and floods, especially in Lancashire and South Yorkshire, in most cases exceeding all ordinary floods, and in some rising higher than the topmost previous marks. Warrington, floods equalled only by those of July 15th, 1828, and December 21st, 1837. Manchester, such floods as have rarely been seen here ; the Irwell was 25 ft. above its ordinary level, and has not been so high since the Holmfirth catastrophe, February 5th, 1852. The Aire at Leeds rose higher than had ever been known. The Ouse at York rose 15 ft. above its ordinary level. Well Head, Halifax : On 15th and 16th 3¼ inches of R, and between 13th and 17th 4¼ inches, the result being destructive floods in all the West Riding and Lancashire valleys. In the valley of the Calder the flood far exceeded anything within memory, and no old flood marks are so high as the present ones. Rufford (Lancashire), a greater flood than for 30 years. Wigan, one of the greatest floods on record.

The Floods in Warrington.—During the week we have made careful inquiry and personal investigation into the question of the comparative heights of the present and previous floods, and the conclusion we have arrived at is that, although as the result of a mere rainfall the present visitation may be without known parallel, the height of water attained by previous inundations, when there has been rainfall and high tide combined, has been greater than what we have now experienced. As stated above, the tide on Friday, according to the computation given in the tide-tables, was twelve feet in Liverpool and but two in Warrington, but in fact, owing to the strong north-east wind which blew so opportunely, the tide was unable to make head against its force, and the result was there was no perceptible rise of water from this cause in Warrington. We have been favoured with the following extract from a letter from the dock-keeper at Runcorn, which is conclusive evidence of this fact. He says:—"Had the spring tides been on, the destruction would have been awful. On Friday night, the tide never ran up to the Duke's pier [the lowest point in Runcorn], and there was only one foot six inches between high water and low water, the fresh was so great."

The record of the height of two previous floods is preserved on the house of Mr. J. Lea, No. 8, of the river-side row of houses, in Latchford. On the side post

of his door two brass plates are fastened; the highest, which is three inches above the flood mark of the lower, reads—

S T.
S W I T H I N.
1828.

The lower one reads—

S T. T H O M A S' D A Y.
1837.
W A T E R M A R K.

The mark for our present November flood is placed six inches below that for St. Thomas' Day, and nine inches below that of St. Swithin's Day. The brass plate to be placed there will read—

NOVEMBER 17TH, 1866.

In the lowest room of Howley Quay warehouse, there is the following record of a flood, chalked on the beam:—"A flood fourteen inches in this warehouse floor, July 15th, 1828." Last Saturday, November 17th, 1866, it rose on this floor to the height of nineteen inches, or five inches higher than the 1828 flood, and this 1828 flood is the highest remembered by Mr. James Boscow, the engineer employed by the Bridgewater Trust, who has been in their employ forty years. Outside of this room, at the west corner of the large warehouse, there is a stone, on which is cut:—

"H. W. 1828.———"

This is two feet four and a half inches from the ground. On Saturday last, at ten o'clock, the water was an inch and a half lower than this mark. Two flats were then moored at the wharf wall close to this corner, and it is surmised that to this circumstance the discrepancy between the comparative heights reached inside and outside the warehouse on the two occasions referred to may be attributed, but this is a point we feel ourselves unable to decide.

Since writing the foregoing, we have been favoured with the exact height of the tide at Liverpool on the St. Thomas' Day flood. It is given in Holden's Almanack for that date as being eleven feet seven inches, so that on the occasion of this flood the height of the water could not have been influenced by the tide any more than it was on Saturday.

The extraordinary down-pour of rain during the night between the 15th and 16th inst., which was the immediate cause of the floods in Lancashire and Yorkshire, was, as might be expected, preceded and accompanied by very great atmospheric disturbance, as indicated by the barometer and thermometer. The barometer reading in the neighbourhood of Warrington, at nine a.m. on the 13th, was 29·496 inches (corrected, at 32° Fah.); it then rose to 30·075 inches by nine p.m. on the 14th, and fell again to 29·192 inches at nine a.m. on the 16th. Then followed a remarkably rapid rise to 30·164 inches at nine a.m. on the 17th, being very nearly one inch in twenty-four hours. There were thus three oscillations of the barometer in four days, amounting together to 2·434 inches. Temperatures also were very variable. On the 15th, at nine a.m., the thermometer read 44°; but by nine p.m., had risen to 52°·3, which was, in fact, the maximum temperature for the day; during the night (that on which the heavy rain fell), it did not fall below 51°·3, but at nine p.m. on the 16th, it had got down to 39°·6; and on the 17th, there was a sharp frost with a minimum temperature of 24°·4. The depth of rain which fell in this neighbourhood on the 15th and 16th was 1·340 inches, which amount, great as it is, was much exceeded in many other districts. On the

night of the 17th, the barometer again fell rapidly from 30·168 inches to 29·620 inches at nine a.m., on the 18th, and the thermometer rose to 49°·8. This fresh indication was accompanied by a further very heavy fall of rain on the 18th (from midnight to 10·30 a.m., amounting to ·540 inches), which gave ground for fears lest the flood should be renewed, which fears, however, were fortunately not realized. The rainfall in November, up to the 18th inst., is 4·249 inches.—*Warrington Advertiser.*

DECEMBER.

From Grenada we learn that a fearful thunderstorm, with destructive torrents of rain, passed over the island on the 1st of December, the north end experiencing the most devastating portions of its ravages. A letter from St. Patrick's parish, which suffered most severely from the storm, published in the *Chronicle*, says:—

"On Wednesday night last, at about 9, dense black clouds arose in the north-west, and at once with astounding celerity so darkened the whole sky that one's uplifted hand could scarce be seen by himself, and in a few moments after the rain poured in torrents until nearly daybreak. On Thursday and Friday the rain continued to pour at intervals, and on the latter night, accompanied by vivid flashes of sheet lightning. Saturday morning broke drizzly with sulky skies, the elements pouring on the efforts of the poor planter, threatening, as it were, vengeance that neither hoe nor cart, cattle nor man, should be employed—yea, more, that the scarcity of ground provisions necessitating supplies from other districts should be denied us. The rain poured in torrents from half-past 11 a.m. to about 3 o'clock p.m., and after a partial cessation continued until daybreak this morning. The amount of damage done is lamentable. To begin the picture, two of our public bridges have been swept away, the one on the Mount Craven Estate, the other on the Madeys. The sand on Irvin's Bay (our main landing-place) is no longer visible, but instead a shoal of rocks, portions of mason work, and uprooted trees and stumps; and on the sea drifts of stems, grass, and land floating away like small islands. The Marli Canal broke away at its source, where it appears the flood must have swollen to about 18 or 20 feet, for the La Fortune bridge, fully this height at its centre, was inundated to such an extent that large trees were afterwards removed from athwart it. Quicksands and slides, mounds and cairns abound everywhere, excessively dangerous to travellers; batches of canefields, and, I believe, cocoafields, once beautiful to the eye of the depressed planter, are now lying partially waste; this is not all, but on certain portions of the low lands cattle pens were broken and human beings have had to be removed for safety from their dwellings by means of boats. A horse swept away by the flood was fortunately picked up alive on the Mount Craven Beach. Well may we remember the first day of December, 1866, and with this offer sincere thanks to the Great Disposer of events that no lives were lost."—*Times.*

6th.—Violent gale throughout the country. It appears to have been remarkable for commencing almost simultaneously in widely separated places. Galway, gale began at 8 p.m. Doo Castle (Sligo), heavy gale at night, trees and stacks blown down. Leckpatrick, heavy gale, bar. 28·7 at 11 p.m., and on the morning of 7th, at 9 a.m. 30·22. Dublin, gale began about 7 p.m. from S., blowing furiously till 11 p.m., when it lulled, but recommenced about 2 a.m. 7th from W.S.W. harder than ever. Antrim, fearfully stormy at night. Hawick, very heavy gale from W. Fort William, N.E. gale at night. Dumfries, heavy gale at night.

7th.—St. George's Road, Glasgow, remarkable oscillation of the bar.; on 7th, at 6 a.m., it was 28·67, and by 4 p.m. on 8th it had risen to 30·29. Bunessan, bar. 29·05 at 4 p.m. 7th, and 30·10 at 9 a.m. 8th. Laggan, dreadfully stormy.

12th.—Taunton, L in E. Bunessan, L.

13th.—Calne, T S in W. at 6 p.m. Buckish, T. Dartmoor, T and H. Waltham-on-the-Wolds, the R came down in sheets; ·25 in. fell in less than ten minutes. Grundisburgh, T S at 2 p.m.; shortly before the storm it was so dark I could scarcely see at all indoors; the R appeared to come down in sheets, and ·46 fell in less than half an hour; a windmill (three miles hence) was struck by L.

14th.—Calne, violent T S with H at 3 a.m.; Goodamoor, T; Abercarn, T S at night; Rhayader, T S.

15th.—Calne, gale and violent T S at 8 p.m., with much L and H. Mells, gale

from S.W., top of observatory blown off. Markree, T S at 11.30 p.m. Dartmoor, T at night.

16th.—Taunton, T S, passing from S.W. to N.E. ; Calne, T in S.W. at 6 a.m.

17th.—Linton Park, L ; Leckpatrick, heavy gale from S.W.

22nd.—Remarkable and dense fog all day over the greater part of the south and east of England.

25th.—Bright aurora in the evening.

26th.—Spilsby, much L about 10 p.m. Wisbech, pressure of 14lbs. at 10 p.m. on 26th. Laggan, sudden fall of the bar., and tremendous gale from 9 to 11 p.m. In the force of the wind on the night of the 26th lies indisputably the explanation of the following statement by Dr. Mercer Adam, of Boston :—A remarkable T S, with heavy R occurred early on the morning of the 27th, and the pavements of the streets were covered with fine sand, deposited by the rain which fell. No such sand exists anywhere near this district. It has probably been carried up into the clouds by a water spout, and may have travelled a long way before being discharged on this place.

27th to 29th.—Stormy southerly gales prevalent. Gale (50 miles per hour) from 1 to 5 a.m. on 28th at Sandwick.

30th.—Up to this date the month had been unseasonably mild, as evidenced by the following notes:—Haverfordwest, on 15th, a rose carnation bloomed perfectly; Brampton, on 25th, ranunculus and many other flowers in bloom ; Swaffham, primroses, violets, and yellow jessamine in flower ; St. Lawrence, Isle of Wight, primroses in bloom, red admiral butterfly seen on 18th and 19th ; Great Torrington, the following were in leaf or bloom in my garden or neighbourhood on 31st : Carnation, hydrangea, wallflower, double ten-week stock, primrose, heliotrope, verbena, and wild strawberry, but the frost and snow came and caught them. Tickhill, T S. S and frost set in, and the year expired leaving the country with an average covering of three inches of S.

GENERAL CHARACTERISTICS OF EACH MONTH, AND OF THE YEAR 1866.

JANUARY.

Mild, damp, and rainy; the fall excessive in the south and west of England, below the average only in the north-east of England and the east of Ireland. Rain fell daily at most stations except from 22nd to 27th, when none fell in England and Wales, and very little in Scotland.

FEBRUARY.

Wet almost everywhere; the only days without rain were about the 20th.

MARCH.

Cold, dry (especially in the Midland Counties), but snowy. In Ireland the rainfall was near the average.

APRIL.

A mild month; rainfall about the average; east winds prevailed, causing a very dry atmosphere at times.

MAY.

Bitterly cold, ungenial weather; easterly winds; great range of temperature, frequent frosts, deficient rainfall everywhere, in some places not half the average. After 12th, hardly any rain fell for 18 days. Many trees sadly cut up by the frosts.

JUNE.

Very different weather prevailed in different parts of the British Isles during the first three weeks of this month; on 20th or 21st a period of intense heat set in, followed by some of the most violent thunderstorms I have known for years. The total rainfall (as might be expected) was irregularly distributed, but on the whole near its average amount.

JULY.

Rain was above the average in the Northern Counties of England and the Southern ones of Scotland, and below the average elsewhere.

There was an almost total drought from the 8th to the 26th, not only in England, but (beginning a few days later) in Scotland also. It was a dry, warm, fine month. Very heavy rain at the close.

AUGUST.

Excessive and continuous rains in the Midland Counties; in other parts of the country, though there was frequent rain, it was separated by intervals of fine weather. Much of the corn in Leicestershire and neighbouring counties stood in water for weeks.

SEPTEMBER.

Remarkable not only as in many places the wettest September for 20 years, but also in contrast to September, 1865, which, it will be recollected, was one of the driest months on record. At many stations rain fell on every day, and in the Severn Valley and its neighbourhood, the fall was four times the average due to the month. The fall was *less* than the average at Portree and Sandwick.

OCTOBER.

Until the 12th very fine. It is doubtful if any rain at all fell, for the stray notes of 0·01 or 0·02 at some stations may very possibly have arisen from the heavy mists which prevailed—these mists being themselves the result of the super-saturated condition of the ground from the continued rains of September. It was a dry October in all parts of the country—in the West of Scotland the driest for several years.

NOVEMBER.

The fall of rain in this month was irregular, but on the whole near the average. The floods so destructive in Yorkshire and Lancashire were not general throughout the country, and England, south of lat. 52·50, also Ireland, did not have its average fall.

DECEMBER.

A remarkably mild month. In Scotland wet and stormy, but in England and Ireland the rain hardly reached the average.

The Year 1866.

The relation of the total fall in 1866 to the average of 1860—5, and to previous wet years, is fully shown by the following table. It will be remembered that the relation of the above-mentioned years to the average of previous periods was shown in *British Rainfall*, 1865,

pages 30, 31. Some of the leading features may be specified in a few words.

1.—(*a*) In every part of England the total fall was above the average.

(*b*) The excess in England averaged 19 per cent. (say one-fifth), but it was irregularly distributed, the only approach to a broad general rule being that the greatest excesses were mostly on a tract running about N.W. from Northampton to Alston, Cumberland. At some stations in this tract the excess was more than 40 per cent.

(*c*) In Scotland there were many stations which had less than their average, but those in the west midland counties having a considerable excess, the result for the whole country is a trifling excess of about 4 per cent.

(*d*) In Ireland the fall was below the average in the East, above it in the West.

2.—(*a*) Comparing 1866 with the wettest year since 1847, we find that there were only three stations* in England at which the fall was greatest in 1866, and that, though a wet year, it has not been near so rainy as 1848 and 1852.

(*b*) In Scotland the year of previous heaviest rain is very irregular, but there also we find only one station wetter in 1866 than in any previous year.

3.—The final result may apparently be summed up in the verdict that 1866 was a wet year, but not so wet as 1860, or 1852, or 1848.

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* Bolton, Belmont, and Preston—all in Lancashire.

RAINFALL IN 1866 COMPARED WITH PREVIOUS YEARS.

Div.	STATION.	COUNTY.	Greatest fall in previous 18 years.		Average fall 1860-65.	Depth in 1866.	Difference from Average.
			Date.	Depth.			
				in.	in.	in.	in.
II.	Sittingbourne (Tong) ...	Kent	1848	35·00	25·40	29·52	+ 4·12
,,	,, (Hartlip)...	,, ...	,,	40·37	27·98	33·95	+ 5·97
,,	Chichester	Sussex.....	1852	38·93	29·01	32·18	+ 3·17
,,	,, Chilgrove	,, ...	,,	50·87	32·77	36·66	+ 3·89
,,	,, W. Dean	,, ...	,,	54·20	37·02	40·70	+ 3·68
,,	Ventnor, Isle of Wight...	Hants	,,	42·05	29·26	36·22	+ 6·96
III.	Hemelhempstead	Herts	,,	41·41	25·47	30·21	+ 4·74
,,	Berkhempstead	,, ...	,,	37·82	28·02	34·80	+ 6·78
,,	Oxford.....	Oxford.....	,,	35·55	21·26	24·56	+ 3·30
,,	Althorp	Northants ...	,,	32·04	21·77	28·59	+ 6·82
,,	Cardington	Bedford	1848	31·05	21·87	26·88	+ 5·01
IV.	Epping	Essex	1852	37·42	26·05	29·88	+ 3·83
,,	Witham	,, ...	1848	30·00	20·73	23·68	+ 2·95
,,	Thwaite	Suffolk	1860	36·60	27·70	32·31	+ 4·61
,,	Norwich	Norfolk	1852	32·84	24·37	27·63	+ 3·26
,,	,, (Honingham) ...	,, ...	1860	33·06	23·28	24·34	+ 1·06
,,	Burnham.....	,, ...	1848	37·71	25·98	29·12	+ 3·14
V.	Baverstock	Wilts	1852	46·55	29·57	34·56	+ 4·99
,,	Plymouth (Ham)	Devon	,,	66·66	42·17	47·61	+ 5·44
,,	Plympton (Goodamoor)...	,, ...	,,	74·57	57·32	65·46	+ 8·14
,,	Exeter.....	,, ...	,,	42·67	30·17	36·94	+ 6·77
,,	Honiton (Broadhembury)	,, ...	,,	49·66	34·28	38·36	+ 4·08
,,	Helston	Cornwall	1848	46·62	38·05	42·95	+ 4·90
,,	Truro	,, ...	1852	52·65	42·56	50·77	+ 8·21
XI.	Guernsey.....	Channel Isds.	,,	49·13	37·09	44·42	+ 7·33
V.	Bath (Swanswick)	Somerset.....	,,	42·64	24·15	28·52	+ 4·37
VI.	Cirencester	Gloucester ...	,,	48·85	30·87	37·97	+ 7·10
,,	Burford	Shropshire ...	,,	39·67	26·25	27·68	+ 1·43
,,	Shiffnal	,, ...	,,	37·58	23·74	29·93	+ 6·19
,,	Orleton	Worcester ...	,,	45·43	30·06	34·62	+ 4·56
VII.	Wigston	Leicester.....	1848	36·73	26·49	29·92	+ 3·43
,,	Boston...	Lincoln	,,	32·64	21·72	25·55	+ 3·83
,,	Welbeck	Notts	,,	34·97	24·02	26·68	+ 2·66
,,	Derby	Derby	,,	40·07	25·14	34·47	+ 9·33
VII.	Bolton (The Folds)*	Lancashire ...	1860	57·66	48·33	59·20	+10·87
,,	,, (Belmont)*.....	,, ...	1848	66·70	55·70	68·10	+12·40
,,	Preston (Howick)*	,, ...	1862	44·33	38·09	45·65	+ 7·56
,,	Coniston	,, ...	1861	102·20	86·00	96·60	+10·60
IX.	Redmires...	Yorkshire ...	1848	48·18	37·89	47·73	+ 9·84
,,	Leeds (Holbeck)	,, ...	1852	32·80	21·99	31·05	+ 9·06
,,	,, (Eccup).....	,, ...	1848	35·61	24·69	35·55	+10·86
,,	York	,, ...	,,	36·02	23·38	25·71	+ 2·33
,,	Settle	,, ..	,,	57·49	39·77	56·17	+16·40
,,	Patrington	,, ...	,,	29·60	18·82	22·52	+ 3·70
X.	Bishopwearmouth	Durham	,,	27·02	21·16	22·22	+ 1·06
,,	Seathwaite	Cumberland..	1861	182·58	153·47	179·12	+25·65
,,	Ambleside	Westmorland.	1852	104·33	81·31	99·81	+18·50

* Wetter in 1866 than in any of the previous 18 years.

RAINFALL IN 18666 COMPARED WITH PREVIOUS YEARS.

SCOTLAND.

Div.	STATION.	COUNTY.	Greatest fall in previous 18 years.		Average fall 1860-65.	Depth in 1866.	Difference from Average.
			Date.	Depth.			
			in.	in.	in.	in.	in.
XII.	Mull of Galloway	Wigtown.....	1864	34·07	28·31	30·48	+ 2·17
,,	Little Ross	Kirk'udbright	1852	35·03	27·35	28·70	+ 1·35
XIII.	Haddington	Haddington..	,,	29·80	26·93	24·80	— 2·13
,,	Inveresk	Edinburgh ...	1862	32·89	30·05	28·98	— 1·07
XIV.	Bothwell Castle	Lanark	,,	38·96	28·33	33·85	+ 5·52
,,	Largs (Mansfield)	Ayr	1861	55·80	48·63	54·70	+ 6·07
,,	,, (Brisbane)	,, ...	,,	62·00	53·24	55·80	+ 2·56
XV.	Pladda	Bute.....	1862	53·69	38·12	44·16	+ 6·04
,,	Mull of Cantyre	Argyll	1850	60.73	44·61	47·54	+ 2·93
,,	Rhinns of Islay*	,, ...	1848	36·88	32·66	38·71	+ 6·05
,,	Castle Toward.....	,, ...	1850	66·18	53·80	63·85	+10·05
,,	Lismore	,, ...	1863	54·12	46·95	53·83	+ 6·88
,,	Hynish, Tiree	,, ...	1861	89·57	84·77	78·72	— 6·05
XVI.	Isle of May	Fife	,,	33·63	21·08	18·02	— 3·06
,,	Deanston.....	Perth	1852	54·35	42·35	49·72	+ 7·37
,,	Stanley	,, ...	,,	37·82	30·60	30·78	+ 0·18
,,	Dundee (Hill Head)	Forfar	1848	45·43	35·59	34·06	— 1·53
,,	,, (Seichen)	,, ...	,,	43·38	36·87	34·20	— 2·67
,,	Arbroath.....	,, ...	1864	34·20	29·71	25·98	— 3·73
XVII.	Aberdeen (Girdleness) ...	Kincardine ...	1848	25·91	22·13	22·50	+ 0·37
,,	Kinnairdhead..	,, ...	1858	28·94	23·32	22·76	— 0·56
XVIII	Cromarty.....	Ross.....	1861	41·13	27·80	25·74	— 2·06
,,	Barrahead	Inverness ...	1850	41·22	32·62	30·60	— 2·02
,,	Island Glass	,, ..	1854	48·43	23·86	30·10	+ 6·24
,,	Cape Wrath	Sutherland ...	1863	50·95	39·59	38·85	— 0·74
XIX.	Dunnethead	Caithness ...	1861	30·14	25·93	29·72	+ 3·79
,,	Pentland Skerries	,, ...	1850	34·50	28·92	29·33	+ 0·41
,,	Sandwick	,, ...	1859	44·43	36·79	37·31	+ 0·52
,,	Sumburghhead	,, ...	1849	35·73	25·52	23·96	— 1·56

IRELAND.

XX.	Portlaw	Waterford ...	1852	51·29	45·90	41·24	— 4·66
,,	Killaloe	Clare	1848	52·55	46·70	51·78	+ 5·08
XXI.	Portarlington	Queen's Co....	1863	45·31	41·38	30·74	—10·64
,,	Black Rock	Dublin	1852	31·62	25·83	27·54	+ 1·71
XXIII	Armagh	Armagh	,,	49·25	38·89	34·10	— 4·79
,,	Belfast (Linen Hall) ...	Antrim	1862	41·18	37·12	39·54	— 2·42

* Wetter in 1866 than in any of the previous 18 years.

OBSERVERS' NOTES ON THE YEAR 1866.

ENGLAND.

TUNBRIDGE.—The amount for the year is the largest I have registered in Kent.

FOREST LODGE, SUSSEX.—February and September were persistently wet months.

LEIGH PARK, HANTS.—A wet year, with an unusual number of wet days.

WATFORD.—The largest amount since 1858.

ALDHAM, SUFFOLK.—This has been the wettest year in this locality since 1852, when the fall was 33·05.

BEECH HILL SUFFOLK.—The largest fall for years.

TORQUAY.—There were five rainless periods of a week or upwards, viz. :—May 16th to 24th, 9 days ; June 21st to 27th, 7 days ; July 8th to 14th, 7 days ; 16th to 26th, 11 days ; October 6th to 13th, 8 days.

BRAMPFORD SPEKE, DEVON.—A very cold spring. July drier than usual. September more than double the average of the last 8 years' rain.

WALROND PARK, SOMERSET.—Wild, windy, and ungenial spring, barren summer, and untoward autumn. One of the worst years of weather known to the farmer.

LEOMINSTER.—Since I commenced in 1858 I have never measured so much. The latter months being rather drier, enabled the farmers to get their corn into the ground in good condition.

WHITCHURCH, SALOP.—Throughout the year it has been wet, especially after the hay harvest. There have been no storms worth speaking of; it has been rather a continual soaking rain, with a day or two's interval of fine weather. The land is *wet through.*

CALTHORPE ST., BIRMINGHAM.—Total ·70 more than average (10 years.)

BELVOIR CASTLE, LEICESTER.—The excess of wet in the ripening period of the year proved detrimental to corn and fruit, and the preparation of land for sowing corn was delayed later in the year. Fruit trees have not ripened their wood, and the consequence will probably be failure of crops next year. Potato disease virulent.

WELBECK, NOTTS.—Total 2·68 above average (30 years.) Though Yorkshire, Lancashire, and Scotland were flooded, the Trent was not higher than is often known, thus showing that the rainfall of the Midland Counties did not reach much above the average. The almost daily falls of September and October kept the farmers on the alert.

BOLTON-LE-MOORS. — More rain in 1866 than in any other year since 1831. The excess above the average was far greater at Bolton than at Braystones, Cumberland.

SOUTH SHORE, BLACKPOOL.—Rain in 1866, 39·91 ; average, (11 years,) 31·50. Evaporation in 1866, 30·86, average (11 years) 28·81.

STONYHURST.—Total fall the greatest ever registered at this station in one year, and 16 in. above the average annual fall.

CATON, LANCASTER.—The wettest year that I have registered (18 years). Mean of 18 years, 39·74 ; excess in 1866, 12·97 ; mean of last 7 years, 44·85 ; mean of preceding 7 years, 35·01.

HEST BANK, LANCASTER.—More rain in 1866 than in any year since 1852, when it was 48·21.

FRIESLAND, YORKSHIRE.—Total nearly double that of 1865.

WELL HEAD.—More rain fell in 1866 than since I have measured, (38 years,) and nearly one-third more than the average.

BEADLAM GRANGE.—The last seven months were unprecedentedly wet, and the harvest was gathered in a damp and unsatisfactory state, much of it having

sprouted. Wall fruit neither ripened nor had any flavour; no hazel nuts; apples abundant; mangolds and turnips good; potatoes diseased; autumn temp. high; primroses gathered on Christmas day; rinderpest raged frightfully during the first five months of the year.

WALES.

LLANFAIRFECHAN, BANGOR.—January, September, November, and December wet; April unusually dry; the total rainfall almost a third more than usual, the average being (I believe) about 31 in.

BLAINA, TREDEGAR.—Fall much in excess of 1864-5; rain measured on every day in September; the heavy autumnal gale was most salutary, preventing the diffusion of cholera in this district.

SCOTLAND.

SOUTH CAIRN, WIGTOWN.—We have had a continuance of heavy gales, with bitter hail and snow showers.

DUMFRIES.—8·70 in. more than last year, and 62 days more on which rain was measured; but the rain of this year is slightly below the average of the last five years.

STUCKGOWN, ARROCHAR.—An unusually wet year.

ARDDARROCH, LOCH LONG.—More rain has fallen this year than during the last 19 years.

BUNESSAN, MULL.—I have observed that when the rain comes from the S.E. round to S.W., the raindrops are much larger than when it comes from the S.W. round to the N.W.; the latter coming from the sea partakes more of the nature of drift rain, than rain coming off the land.

STONEFIELD, ARGYLL.—Average (27 years), 61·72; 1866, 86·01; next wettest, 1863, 80·40; the driest, 1855, 41·45.

CALLTON MÔR, ARGYLL.—The season has been the wettest for 11 years; crops below their average.

BLAIRHOYLE, STIRLING.—Very little frost; deepest snow 8 in., and that for a very short time; summer wet and cold; harvest very late; neither peaches nor tomatoes ripened on the walls in this part.

LENY, PERTH.—1866 (75·40) the wettest since 1853; the next wettest was 1862, 75·0; The driest year in the same period was 1865, 46·90.

FORT WILLIAM.—A good deal of fine weather in the early summer, but on the whole it has been very wet. Eighteen days on which more than 1 inch fell.

ARDROSS CASTLE.—The warmest days were the 26th and 27th June; the early part of summer fine, but August and following months cold and wet; as a whole the year has been wet, exceeding the fall of 1865 by 10½ in.

IRELAND.

BALLINLONTY, TIPPERARY.—A very wet year, having exceeded 1865 by 7·37 in.

RATHCULLIHEEN, WATERFORD.—The smallest fall since 1858.

KILLALOE, CLARE.—The rainfall of 1866 (51·78), has only been exceeded twice in 20 years, *i.e.*, 1848, 52·55, and 1861, 51·84.

CREGG PARK, GALWAY.—Year remarkable for an almost total absence of frost or snow; summer generally wet; such fine weather as there was, fortunately occurred at times favourable to the crops; the harvest proved a good one; mushrooms were scarce; in the autumn an unusual number of ephemera, particularly flying ants.

FLORENCE COURT.—1866 has been the wettest year for the last 13 years, except 1861, when it was 51·17.

FASSAROE BRAY.—Average (7 years) ending 1865, 43·30; this year, 38·21, is therefore 5 in. below the average; except in May, ·96, and June, 5·31, the rain was very equally divided.

MONEYDIG GARVAGH.—Bad harvest, not so much from heavy rain as from the absence of drying winds. From the 18th April to 8th May very cold and dry; from 11th of May to second week in June uncommonly dry and warm. The gentleman who thought he had made the important discovery that the rainfall was decreasing, would have found out his mistake had he been here since about the 1st of July.

ANTRIM.—The rain has been 3·61 in. above that of last year.

EXPLANATORY OF DIAGRAM. *(Frontispiece.)*

It is hoped that very few words will suffice to explain the aim and construction of the diagram—the essential principle being the very simple one, that the length of the lines is proportional to the rainfall at the several places named. Thus, the length of line representing 100 inches, being 1·4 inches, the length for 50 inches is 0·7 inches. Moreover, against the lines representing the various depths, the names of places having that number of inches of rain in 1866 are placed. For instance, against 50 inches we find Penzance, Redruth, Truro, Preston, Lancaster; then comes a colon (:), denoting that the succeeding name is in another country—a Welsh one—Llangybi; then another (:), denoting another country—Scotland—Stranraer, Deanston. Sometimes two colons are placed together, to indicate the absence of any station in the intermediate country; for example, 67 inches—Woodhead : : Wanlockhead—showing that Wales is unrepresented. Sometimes there is some number recorded at no English station; then a : is prefixed, as at 70 inches, : Brynderwen, showing it to be a Welsh station. If both England and Wales are unrepresented, the Scotch name is preceded by : : as at 75 inches, : : Aberfoyle.

It will be noticed that occasionally a place is quoted as having an inch or two more rain than that shown by the return given in the general tables; the reason being that the values quoted in the diagram are corrected for elevation. For example, at Redcar the recorded fall was only 25·71 in., but the gauge is in an exposed position and 9 feet above the ground. I have, therefore, raised it to 27, which an examination of adjacent returns will convince any one is nearer the truth.

I do not wish to be betrayed into a disquisition on the general distribution of rain over the British Isles, because though the subject is very tempting, it is treacherous ground, for the following reason:—On page 55 I have pointed out that the rainfall in England in 1866, though universally in excess, was principally so along a tract running S.S.E. to N.N.W. through the Midland Counties, and that in other places irregularities had prevailed. Therefore, although very interesting, as faithfully representing at a glance the relative wetness of different places in 1866, yet it must not be assumed that the *mean* fall at Nottingham is 30 inches, or at Northampton 29 inches.

I am thus explicit, because any misconception is very undesirable, but at the same time the irregularities thus produced are not generally important, and a series of these tables for several years will soon correct any temporary irregularity of position, whether in excess or defect.

Having thus pointed out its inevitable faults (if such they can be considered), I proceed to point out some of its recommendations. In the first place, it shows at a glance the relative rainfall at nearly all the principal places in the British Isles; and thence it is extremely easy to obtain almost any information required—such, for instance, as the annexed, showing the depth of rain at some of the principal watering places; and the same can easily be done for different geological formations, and other questions. Of course, reference can be made to the general tables, should even the crowded diagram be insufficient.

Rainfall at Watering Places and Health Resorts in 1866.

ENGLAND.	inches.
Bath	38
Blackpool	40
Brighton	34
Buxton	77
Cheltenham	31
Clifton	40
Dawlish	39
Dorking	36
Dover	37
Filey	27
Harrogate	39
Hastings	32
Hythe	33
Leamington	28
Lowestoft	27
Malvern	29
Margate	28
Redcar	28
Ryde	36
Scarborough	31
Sidmouth	38
Southampton	35
Taunton	32
Teignmouth	44
Torquay	41
Tunbridge	37
Whitby	29
Weston-super-Mare	33
Windermere	77
WALES.	
Aberystwith	48
Beaumaris	45
Conway	31
Denbigh	34
Llandudno	34
Rhyl	28
Tenby	41
CHANNEL ISLES.	
Jersey	36
Guernsey	40
Sark	32
SCOTLAND.	
Braemar	34
Stirling (Bridge of Allan)	43

In conclusion, reference may be made to the low and high returns respectively. The former, as usual, are chiefly in the neighbourhood of Bedford, Cambridge, Lincoln, and in the East of Scotland. High returns, that is to say over 100 inches, are reported from 8 stations in England, 3 in Wales, and 10 in Scotland. The Stye (224) still heads the list, and Seathwaite (179) follows at the usual distance; then comes the Scottish station of Glen Croe in Argyll with 145 inches; then at 131 inches are the two stations of Stonethwaite, Cumberland, and Ardlui, Loch Long, Argyll; and followed by 16 others with 100 inches or more.

REGISTER OF RAINFALL IN 1866.

Kept at Acol, Thanet.

BY E. S. LENDON, ESQ.

Time of Observation, 9 a.m.

Latitude... 51° 22′ N.

Longitude 1° 19′ E.

Height of Receiver, of Rain Gauge { Above Ground... 1 ft. / Above Sea Level 60 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in	in.	in.	in.	in	in.	in.	in.
1	...	·14	...	·03	...	...	·70	...	...	...	·08	...
2	...	·24	...	·04	·16	...	...	·35	·17	...	...	·11
3	·15	...	...	...	...	·74	·72	...	...	...	...	·05
4	...	·36	...	...	·34	·30	·04	...	...	...	...	...
5	·06	...	...	·28	...	...	·30	·38	02	...	...	·32
6	...	...	...	...	...	...	·85	...	·25	...	...	...
7	·36	·06	·32	...	...	...	...	·05	...	...	...	...
8	...	...	·19	...	...	...	·02	·14	·19	...	·40	·09
9	·01	·28	·13	...	·09	...	...	...	·06	...	...	...
10	·66	·08	...	·34	...	...	...	·15	...	...	·16	...
11	·61	·68	...	·29	·24	...	...	25	·10	...	...	...
12	·08	...	...	...	...	...	...	...	·21	...	·51	·04
13	·27	...	...	...	·28	...	...	·06	...	...	·26	·40
14	...	·10	...	·14	...	...	...	·22	...	...	...	...
15	...	·36	...	·17	...	·14	...	...	·46	·13	·17	...
16	·28	...	·09	...	...	·38	...	·08	·73	...	...	...
17	...	·18	·09	...	...	·10	...	...	·01	...	·40	·22
18	·06	...	·03	...	...	...	...	...	...	·18	...	...
19	...	...	...	·15	...	·01	...	...	...	...	·02	·02
20	·05	...	...	...	·02	·44	...	...	·18	...	...	...
21	...	...	·40	...	...	...	...	...	·80	...	...	...
22	·28	·10	...	...	...	...	...	...	...	...	·10	·06
23	...	·15	...	...	...	...	...	...	...	...	...	...
24	...	·01	·54	...	...	·14	...	...	·04	...	...	...
25	...	·50	...	...	. .	...	...	...	...	...	...	...
26	...	·19	·14	...	...	...	...	·49	·30	·11	...	·14
27	...	·08	...	...	...	...	·28	...	...	...	...	...
28	...	...	·14	·45	...	...	...	·64	...	...	...	...
29	...		...	..	...	·19	·29	·34	...	...	...	...
30	...		·20	·03	...	...	...	·02	...	...	...	...
31	·12		·08		...		·22	...		...		·04
Totals.	2·99	3·51	2·35	1·92	1·13	2·44	3·42	3·17	3·52	·42	2·10	1·49
Total since Jan. 1.	2·99	6·50	8·85	10·77	11·90	14·34	17·76	20·93	24·45	24·87	26·97	28·46

REGISTER OF RAINFALL IN 1866.

Kept at Budleigh Salterton, Devon,

BY R. WALKER, ESQ.

Time of Observation, 9.30 a.m.

Latitude... 50° 38′ N.

Longitude 3° 18′ W.

Height of Receiver of Rain Gauge. { Above Ground... 4 ft. / Above Sea Level 16? ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in	in	in.	in.	in.	in.	in.	in.	in.
1	·02	·30	·05	·30	...	...	·05	·13	·65	...	·06	·01
2	·38	·05	...	...	·22	. .	·15	...	...	·02	·04	·10
3	·06	·10	...	...	...	·12	·14	·02	·08	·02	...	·06
4	·13	·25	...	·04	...	·03	·08	...	·80	·01	...	·06
5	...	·02	·50	...	·11	·48	·06	·06	·09	...	...	·55
6	·42	·05	·03	...	...	·03	·15	·33	·78	...	...	·10
7	·09	...	...	·40	...	...	...	·03	·10	...	...	·17
8	·16	·25	...	·10	...	...	...	·12	·30	...	·38	·02
9	·10	·14	...	...	...	...	...	·02	·58	...	...	·06
10	2·00	·48	...	·22	·28	...	...	...	·08	...	·36	...
11	·16	·26	...	·34	·04	·13	...	·58	...	...	...	·15
12	·30	·04	·15	·18	·04	·05	...	...	·63	...	·22	·05
13	·09	...	...	...	·07	...	...	·23	·25	...	·04	·27
14	·17	·26	·35	·24	...	...	...	...	·02	·78	...	·06
15	·22	·23	·15	...	...	...	...	. .	·10	...	·06	·09
16	·04	·10	·40	·15	...	·05	...	·08	·45	...	·02	·15
17	·10	...	·12	...	...	·35	...	...	·03	1·06	...	...
18	...	...	·42	...	...	...	...	...	·12	·04	·04	...
19	·26	...	·28	...	...	...	...	...	·03	...	·03	...
20	·06	...	...	·10	...	·02	...	...	·04	...	...	...
21	·16	...	...	·02	...	·02	...	...	·62	·63	...	...
22	·20	·06	...	...	...	...	...	...	...	...	·05	...
23	...	·08	·55	...	...	...	...	·03	·85	...	·01	...
24	...	·03	·12	...	...	...	...	...	·03	·63	·05	·05
25	...	·16	...	...	·10	...	...	...	·12	·01	·05	·39
26	...	·26	·08	·10	1·05	...	...	...	·13	·09	...	·01
27	...	...	...	·04	...	·17	·14	·05	·47	·12	...	...
28	·26	...	·02	·23	...	...	...	·13	·75	...	...	...
29	·12		...	·04	...	...	...	·02	·15	...	...	·07
30	·30		·18	·10	·30	·12	...	..	...	·01	...	·05
31	·30		...	...	...		...	·04		...		·05
Totals.	6·10	3·12	3·46	2·60	2·21	1·57	·77	1·87	8·25	3·42	1·41	2·52
Total since Jan. 1.	6·10	9·22	12·68	15·28	17·49	19·06	20·83	22·70	29·95	33·37	34·78	37·30

REGISTER OF RAINFALL, 1866.

Kept at Rugby,

BY F. FULLER, ESQ.

Time of Observation, 9 a.m.

Latitude, 52° 22′ N.

Longitude, 1° 15′ W.

Height of Receiver of Rain Gauge { Above Ground, 2ft. 4 in. / Above Sea Level, 384 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	...	·20	...	...	·20	·82	·06	·27	·82	·01	...	...
2	·13	·08	...	·24	·10	...	·03	...	·04	·01	·09	·12
3	...	·08	·08	·04	·20	...	·10	...	·17	...	·03	·25
4	·15	·34	...	·01	·02	·34	·23	·04	1·43	·01	...	·01
5	...	...	...	·09	·01	·14	·19	...	·14	...	...	·15
6	·21	·04	·26	...	...	·03	·33	·24	·21	...	...	·34
7	·08	·05		...	...	...	...	·03	·07	...	...	·01
8	·02	·15	·04	...	·10	...	...	·38	·03	...	·26	...
9	...	·17	·01	·06	·01	...	...	·09	·19	...	...	·02
10	·20	·10	...	...	·35	...	...	·09	·18	...	·29	...
11	...	·43	...	·09	·35	·38	...	·15	·04	...	...	·15
12	·14	·21	·03	·02	...	·12	...	·10	...	...	·26	·06
13	·06	...	...	...	...	·02	...	·07	·18	...	·04	·01
14	·02	·09	...	·19	...	...	...	...	·06	...	·05	...
15	·09	·05	·01	...	...	·10	...	...	·14	...	·18	·43
16	·15	·02	·18	...	...	·14	...	·07	·40	...		...
17	·07	·01	·12	...	...	·04	...	...	·05	...	·39	...
18	·04	...	...	...	...	...	...	...	·07	·34	·05	·03
19	·02	...	·10	...	...	...	...	...	·03	...	...	...
20	·01	·01	·03	·08	...	...	...	...	·13	·05	...	...
21	·14	·05	...	...	...	·20	...	...	·16	·18	...	...
22	·33	·07	·15	...	...	...	...	...	·05	·66	...	...
23	...	...	...	...	...	...	...	·01	·30	...	·03	·03
24	...	·35	·06	...	...	...	...	·10	·31	·46	...	...
25	·01	...	...	...	...	...	...	·05	·19	·11	·02	·03
26	...	·08	·01	...	...	...	..	·01	·07	...	·05	·13
27	...	...	...	·01	...	...	·06	...	·34	·09	...	·06
28	·08	...	·02	·40	...	...	1·76	1·49	·23	...	...	...
29	...		...	...	...	...	...	·89	·17	·01	...	·04
30	·02		·06	...	...	...	...	...	...	...	...	...
31	·18		·06		·05		·38	...		·04		...
Totals.	2·15	2·58	1·22	1·23	1·39	2·33	3·14	4·08	6·20	1·97	1·74	1·87
Total since Jan. 1.	2·15	4·73	5·95	7·18	8·57	10·90	14·04	18·12	24·32	26 29	28·03	29·90

REGISTER OF RAINFALL IN 1866.

Kept at Old Trafford, Manchester,

BY G. V. VERNON, ESQ., F.R.A.S.

Time of Observation, 9 a.m.

Latitude... 25° 28′ N.

Longitude 2° 17′ W.

Height of Receiver of Rain Gauge. { Above Ground... 2 ft. 7 in / Above Sea Level 106 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	...	·05	·01	·05	·03	...	·31	·90	·75	...	...	...
2	·18	·06	·04	·02	·21	...	·09	·07	·50	...	·40	·13
3	...	·17	·31	...	...	...	·61	·15	·05	...	·07	·58
4	·23	·24	·09	...	·11	·02	·26	·18	·41	...	·09	·04
5	...	·12	...	...	...	·20	·09	·01	1·15	...	·12	·08
6	·15	·44	...	...	...	·22	...	·17	·10	...	·05	·31
7	·33	·19	...	...	...	·09	·02	·23	·07	...	·05	·06
8	·10	·10	...	...	·06	...	·10	·49	·04	...	·35	...
9	...	·09	...	...	·01	·11	...	·19	·23	...	...	·13
10	·01	·23	...	...	·33	...	...	·11	·32	...	·25	...
11	...	·14	...	·01	·76	·47	...	·03	·65	...	...	·41
12	·29	...	·20	...	·01	1·06	...	·22	·09	...	·35	·08
13	·20	·12	...	...	...	...	...	·05	·20	·44	·46	·19
14	...	...	...	...	...	·03	...	·01	·17	·05	·20	·14
15	·07	·12	·01	·01	...	·29	...	...	·07	...	1·24	·30
16	·27	·07	...	...	...	·20	...	·67	·23	...	·80	·01
17	·18	...	·35	...	...	·08	...	·01	·04	...	·42	·06
18	·08	...	...	·05	...	1·01	...	...	·16	·48	·24	·20
19	...	·10	...	...	...	·04	...	·01	...	...	...	...
20	·06	·12	...	·08	...	·06	...	...	·55	...	...	...
21	·57	·13	·17	...	...	·03	...	·11	...	·10	...	·06
22	·15	·05	...	...	...	...	...	...	·02	·27	...	·01
23	...	·18	·10	...	...	...	...	...	·07	...	...	...
24	...	·26	·21	...	...	...	...	·03	·41	·52	·43	...
25	...	...	·01	...	...	...	...	·04	·01	·01	·10	·03
26	...	...	·22	...	...	...	·21	...	...	·05	...	·48
27	·01	...	·09	·08	...	...	·04	·03	·06	·30	·10	·11
28	·12	...	·14	...	...	...	1·98	·32	·77	·01	...	·04
29	...		·01	...	...	...	·44	1·08	...	·10	...	·44
30	·14		·21	...	·02	·07	·15	...	·01	·18	...	·20
31	·11		...		...		·01	·01		·01		·06
Totals.	3·25	2·98	2·17	·30	1·54	3·98	4·31	5·12	7·13	2·52	5·72	4·15
Total since Jan. 1.	3·25	6·23	8·40	8·70	10·24	14·22	18·53	23·65	30·78	33·30	39·02	43·17

REGISTER OF RAINFALL IN 1866.

Kept at the Reservoir, Filey,

BY D. PHILLISKIRK, ESQ.

Time of Observation, 9 a.m.

Latitude... 54° 13′ N.

Longitude 0° 19′ W.

Height of Receiver of Rain Gauge. { Above Ground... 9 ft. / Above Sea Level 183 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	·17	·02	·01	...	·11	·02	...	·92	...	·02	...	...
2	·04	·17	·02	·51	·30	·25	·40	·26	...	·02	...	...
3	·27	·01	...	·18	·01	...	·01	·17	·72	·03	·25	·02
4	·02	...	...	·04	...	·02	·02	...	·01	...	...	·18
5	·08	·02	...	·23	·02	·01	·08	...	·14	·01	·03	·04
6	·01	·04	·01	...	...	...	·23	...	·68	...	...	...
7	...	·03	·40	...	·01	·22	·01	·06	·19	...	...	·36
8	·16	·01	...	...	...	...	...	·05	·03	·02	...	...
9	...	·05	·06	·04	·18	...	·06	·05	...	...	...	...
10	·02	·02	·01	·20	...	...	...	·17	·20	...	...	·03
11	·03	...	...	·14	·24	·12	...	·17	·05	...	...	·01
12	·01	·82	·02	·19	·12	·02	...	...	·08	...	·18	·23
13	·02	...	·07	·04	...	·41	...	·06	·01	·01	·05	...
14	...	...	·10	·01	·06	...	...	·06	·28	...	...	·04
15	·08	·10	...	...	·02	...	...	...	·02	·02	...	...
16	·07	·03	·02	...	·01	·05	...	...	...	...	·41	...
17	·01	·04	·01	...	...	...	...	·14	·64	·02	·69	·08
18	·07	...	...	...	...	·16	...	·02	·02	...	...	·01
19	·02	...	·02	...	...	·50	·02	...	·03	·18	·41	·02
20	...	·10	·01	·03	...	·05	·01	...	·01	·03	·02	...
21	...	·05	...	·02	...	·07	·01	·01	·02	...	·05	...
22	·08	·04	...	...	...	·16	...	·04	·01	·21	·10	...
23	·01	·01	·02	·01	...	...	·02	...	...	·41	·08	...
24	...	...	·23	...	...	...	·09	·02	·02	·02	...	...
25	...	...	...	...	...	...	·05	·15	·11	·68	...	...
26	·01	·02	·08	·01	...	...	...	...	·01	·35	·05	·06
27	...	·03	·17	·04	...	...	·07	·02	·05	...	...	·07
28	...	·02	·04	...	·04	...	·02	·01	·01	...	...	·04
29	·01		·02	...	...	...	...	·17	·09	·05	...	·01
30	...		...	·02	·01	...	1·55	1·92	...	·01	...	·04
31	·03		·11		...		·19	·01	...	·11		·02
Totals.	1·22	1·63	1·43	1·71	1·13	2·06	2·84	4·48	3·43	2·20	2·32	1·26
Total since Jan. 1.	1·22	2·85	4·28	5·99	7·12	9·18	12·02	16·50	19·93	22·13	24·45	25·71

REGISTER OF RAINFALL IN 1866.

Kept at Seathwaite, Borowdale,

BY MRS. ABBERLEY.

Time of Observation, 9 a.m.

Latitude... 54° 29′ N.

Longitude 3° 11′ W.

Height of Receiver of Rain Gauge. { Above Ground... 1 ft. / Above Sea Level 422 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	...	1·48	...	...	...	...	1·48	...	1·08	...	1·50	...
2	·25	·94	...	·12	·10	·15	·62	·63	·71	...	1·03	...
3	2·95	1·00	...	·26	...	...	1·19	·25	·30	...	1·07	·96
4	·04	2·14	·12	·04	·13	·02	·75	·90	·11	...	·87	2·67
5	1·15	·17	...	...	...	...	1·77	·10	·08	...	·40	1·87
6	...	2·00	·90	...	...	·18	·08	·21	·92	...	·52	·05
7	2·39	1·62	·13	...	...	·57	...	2·20	1·35	...	2·88	1·14
8	1·53	·10	...	...	·08	·36	1·16	1·33	·02	...	·20	·70
9	1·18	·72	...	...	2·24	...	1·77	1·76	...	...	1·27	...
10	·90	·75	...	...	·35	·72	·30	·15	·57	...	...	3·66
11	...	1·31	...	·13	1·63	·13	·05	·33	2·78	...	1·54	...
12	·30	·16	·16	1·07	·40	·45	...	·09	·74	...	...	·60
13	·48	...	...	·17	...	·31	...	·23	·40	...	·48	1·24
14	2·38	·34	...	·95	...	·06	·38	·20	1·18	...	·34	·99
15	·31	·46	·06	...	...	·30	·08	·08	1·73	...	·31	·50
16	1·70	·15	1·40	1·18	...	·15	...	...	·80	·06	6·38	·80
17	·42	...	·55	·68	...	·70	...	1·23	·01	...	·68	·10
18	·85	...	·54	·14	...	·02	...	·10	·10	...	1·09	·30
19	1·23	·03	...	·30	...	·15	...	·05	2·16	·83	...	1·35
20	2·11	·23	...	·47	...	...	...	...	·08	...	...	...
21	·70	...	...	·06	...	1·55	...	...	3·30	·01	...	·33
22	3·03	2·30	...	...	...	...	...	...	·68	·40	...	·20
23	·12	·36	·29	...	...	...	...	...	·72	·06	·85	...
24	...	·30	3.30	...	...	...	...	·15	·04	·12	·28	·11
25	...	2·30	·95	...	...	...	...	·07	·06	1·30	·72	·59
26	...	·20	·02	..	...	...	...	·95	·33	...	·25	·87
27	...	·09	2·48	...	...	...	·07	·11	·03	·14	·38	2·46
28	·11	·02	1·00	...	...	...	...	·89	·07	·62	...	·57
29	1·00		1·02	·36	·13	·28	·27	·09	·92	·08	·04	·86
30	·07		·06	·04	...	·47	·54	·44	·08	6·00	...	2·27
31	·79		·07		...		·67	·15		...		·20
Totals.	25·99	19·17	13·05	5·97	5·06	6·57	11·18	12·69	21·35	9·62	23·08	25·39
Total since. Jan. 1	25·99	45·16	58·21	64·18	69·24	75·81	86·99	99·68	121·03	130·65	153·73	179·12

REGISTER OF RAINFALL IN 1866.

Kept at Lanark, Scotland,

BY GEORGE T. THORNTON, ESQ.

Time of Observation, 9 a.m.

Latitude... 55° 40′ N.

Longitude 3° 48′ N.

Height of Receiver of Rain Gauge. { Above Ground... 1ft. / Above Sea Level 505 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	0·37	0·08	...	0·33	0·02	0·02	0·17	0·47	0·27	...	0·13	...
2	0·44	0·08	0·04	0·09	0·06	...	0·19	...	0·17	...	0·47	0·20
3	0·02	0·27	0·02	0·01	0·08	...	0·06	0·22	0·01	...	0·02	0·25
4	0·48	0·12	...	...	0·07	...	0·43	0·01	0·19	...	0·04	0·17
5	0·10	0·25	0·10	...	...	...	0·04	0·06	0·01	...	0·19	0·15
6	0·20	0·69	...	...	...	0·31	0·01	0·40	0·05	...	0·33	0·50
7	0·35	0·53	0·22	0·06	0·05	0·27	0·04	0·18	0·05	...	0·17	0·22
8	0·79	0·09	...	...	0·14	...	0·04	0·23	...	...	0·12	0·12
9	0·15	0·07	...	...	0·03	0·20	0·09	0·02	0·07	...	...	0·28
10	0·05	0·11	...	0·29	0·72	0·13	...	0·21	0·19	...	0·14	0·01
11	0·15	...	0·10	0·01	0·16	0·03	...	0·05	0·07	...	0·12	0·40
12	0·10	...	0·01	0·01	...	...	...	0·11	0·30	...	0·01	0·26
13	0·26	...	...	0·12	...	0·01	...	0·12	0·18	0·06	0·10	0·21
14	0·23	0·10	...	0·02	...	0·03	0·14	...	0·10	0·02	0·01	0·29
15	0·62	0·06	0·12	0·14	...	0·10	...	0·20	0·39	...	0·67	0·17
16	0·13	0·15	0·04	0·23	...	0·13	...	0·07	...	...	...	0·04
17	0·05	...	0·03	0·03	...	...	...	...	...	...	0·18	...
18	0·20	...	0·01	0·11	...	...	...	0·20	0·16	0·21	0·01	0·20
19	0·16	0·21	0·06	0·15	...	...	...	...	0·12	0·03	...	0·02
20	0·23	...	0·01	...	...	0·13	...	0·01	0·70	...	...	0·01
21	0·12	0·25	0·02	...	...	0·01	...	...	0·30	0·10	...	0·03
22	0·01	0·10	0·07	...	...	...	...	...	0·01	...	0·11	...
23	...	0·05	0·20	...	...	...	...	0·01	...	0·40	0·02	...
24	...	0·35	0·14	...	...	...	...	0·07	0·01	0·07	0·13	...
25	...	0·05	0·06	...	...	...	0·01	0·10	0·08	0·07	0·01	0·13
26	...	0·24	0·09	...	...	...	0·01	0·15	0·09	0·29	0·02	0·39
27	...	...	0·08	...	...	...	0·07	0·01	0·02	0·20	...	0·03
28	0·27	0·08	0·18	0·04	0·09	...	0·91	0·02	0·50	0·02	...	0·13
29	0·01		...	...	...	...	0·57	...	0·01	0·63	...	0·28
30	0·34		0·04	...	...	0·27	0·20	...	...	0·01	...	0·05
31	0·25		...		...		...	0·23		0·08		0·06
Totals.	6·08	3·93	1·64	1·64	1·42	1·64	2·98	3·15	4·05	2·19	3·00	4·60
Total since Jan. 1.	6·08	10·01	11·65	12·29	14·71	16·35	19·33	22·48	26·53	28·72	31·72	36·32

REGISTER OF RAINFALL IN 1866.

Kept at School House of Laggan, Inverness,

BY MR. A. McINTOSH.

Time of Observation, 9 a.m.

Latitude... 57° N.

Longitude 4° 24′ W.

Height of Receiver of Rain Gauge. { Above Ground... 9 in. / Above Sea Level 1000 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in	in.	in.	in.	in.	in.
1	...	·05	...	...	...	·01	·03	...	·20	...	·58	...
2	...	·18	...	...	...	·09	·30	·59	·01	...	·03	...
3	·44	·20	·70	·21	·05	...	·21	·05	·15	...	·01	·08
4	·35	·30	...	...	·17	...	...	·30	·09	...	·02	·38
5	·54	·25	...	...	...	...	·07	·29	·39	...	·02	·49
6	·01	·55	...	...	·02	...	·03	...	·20	...	·30	·52
7	·10	·35	...	...	...	...	...	·35	...	...	·48	·64
8	·18	·46	...	...	·12	·24	...	·27	...	...	·67	...
9	·05	·37	...	...	·06	...	·06	·47	·14	...	·69	·42
10	·03	...	...	...	...	...	·03	·17	·01	...	·02	·34
11	...	·25	...	...	·22	·13	·02	·03	·06	...	·40	...
12	...	·20	·87	·02	·39	...	...	·11	·02	·01	·42	·05
13	...	...	·40	...	...	...	...	·29	·03	·15	·36	·27
14	·50	...	...	·47	·05	...	1·16	·07	·17	·05	·65	·32
15	·35	...	...	·04	...	...	...	...	·11	·06	·10	·15
16	·14	...	·23	·23	...	·12	·10	·22	·05	...	·69	·19
17	·03	...	...	·68	...	·24	...	·10	...	...	·10	·06
18	·34	...	...	·28	·01	·14	...	·16	·01	...	...	...
19	·07	·05	...	·01	...	·20	...	·17	·56	·14	...	·32
20	·18	...	...	·06	...	·01	...	·01	·19	·06	...	·10
21	·27	...	...	...	...	·21	...	...	·22	...	·08	·02
22	·08	·85	...	...	...	...	...	...	·63	·13	·03	·01
23	·06	·57	...	...	...	...	..	...	·03	·01	·20	·02
24	·01	·56	·45	...	...	...	...	·08	·02	·25	·21	...
25	·01	·60	...	...	...	...	...	·16	...	·13	·13	...
26	...	·33	...	...	...	...	·02	·24	·28	·01	·06	·57
27	·01	...	·03	...	...	...	·06	·04	·15	·06	·18	·50
28	·01	...	·16	...	...	...	·02	...	·02	·31	·03	·49
29	·10		·03	...	·09	...	·40	...	·60	·02	...	1·30
30	...		·65	·06	·29	...	·41	...	·35	·60	...	·20
31	·23		·14		...		...	...		·13		...
Totals.	4·09	6·12	3·66	2·06	1·47	1·39	2·92	4·17	4·69	2·12	6·46	7·44
Total since Jan. 1.	4·09	10·21	13·87	15·93	17·40	18·79	21·71	25·88	30·57	32·69	39·15	46·59

REGISTER OF RAINFALL IN 1866.

Kept at Monkstown, Dublin,

BY A. PIM, ESQ.

Time of Observation, 9 a.m.

Latitude... 53° 17′ N.

Longitude 6° 8′ W.

Height of Receiver of Rain Gauge. { Above Ground... 6 in. / Above Sea Level 100 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in	in.	in.	in.	in.	in.
1	·04	·02	...	·20	·02	·15	·05	·43	·07	...	·04	·02
2	·43	·33	...	·21	·03	·01	·02	·01	·05	...	·24	·07
3	·04	·05	...	·01	...	·20	·22	...	·09	...	...	·16
4	·32	·05	...	·52	·03	·03	·08	·19	·11	...	·02	·01
5	·01	·01	·24	...	...	·31	·16	·14	·09	...	·01	...
6	·12	·43	...	...	...	·18	·01	·01	·41	...	·01	·52
7	·02	·23	·02	·01	...	...	·03	·04	..	..	...	·06
8	·07	·08	·02	·04	·04	...	·01	·16	...	...	·06	·01
9	·24	·07	...	...	·16	·05	...	·01	·65	...	...	...
10	...	·10	...	·06	...	...	...	·20	·20	...	·30	...
11	...	...	...	·35	·14	·22	...	·29	·07	...	...	·10
12	·29	·04	·12	·06	·14	·38	...	·01	·26	...	·12	·12
13	..	·02	...	·08	·05	...	·01	·01	·02	·42	·02	·01
14	·01	·05	·82	·09	...	...	...	...	·05	...	·02	·03
15	·09	·11	·26	·03	...	·03	...	·04	·04	...	·06	·06
16	·02	...	·28	·08	...	·31	...	·02	...	...	·13	·03
17	...	...	·05	...	...	·45	...	...	·08	1·06	·10	...
18	·03	...	·12	·12	...	1·14	...	·03	·04	·67	·04	·13
19	·02	·08	·03	·03	...	·06	...	·04	·01	·05	·01	...
20	·13	...	·38	...	...	·13	...	...	·14	·07	...	...
21	·05	·03	...	...	...	·04	...	...	·09	·13	...	...
22	·08	·03	·20	...	...	...	...	·02	·03	...	...	·01
23	...	·02	1·17	...	...	...	...	·19	·03	·09	·02	...
24	...	·25	·14	...	...	...	...	·07	·04	·05	·01	·02
25	...	...	...	...	...	...	...	·02	·10	...	·07	·02
26	...	·15	·01	·19	...	...	·01	·02	...	·13	...	·05
27	...	·09	·02	·03	...	...	·06	·18	...	·04	...	...
28	·04	·06	·03	...	...	...	·15	·08	·03	·02	...	...
29	...		...	...	...	...	...	·01	...	·01	...	·02
30	·48		·07	...	·25	·04	·08	...	...	...	·05	·11
31	·06		·17		·72		...	...		...		·15
Totals.	2·59	2·30	4·15	2·11	1·58	3·73	·89	2·22	2·70	2·74	1·33	1·71
Total since Jan. 1.	2·59	4·89	9·04	11·15	12·73	16·46	17·35	19·57	22·27	25·01	26·34	28·05

REGISTER OF RAINFALL IN 1866.

Kept at Queen's College, Galway,

BY PROFESSOR CURTIS, L.L.D.

Time of Observation, 9 a.m.

Latitude... 53° 17′ N.

Longitude 9° 3′ W.

Height of Receiver of Rain Gauge. { Above Ground... 5 ft. / Above Sea Level 25 ft.

Date.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	·14	·22	...	·03	·01	·07	·06	·23	·53	·01	...	·21
2	·52	·35	·09	·01	...	·46	·04	·07	...	...	·01	·35
3	·73	·29	·08	·18	·16	·30	·11	·25	·19	·03	·28	·60
4	·15	·21	...	·27	·19	...	·12	·14	·26	...	·05	·12
5	·48	·25	·30	...	·01	·61	·12	·27	·12	...	·03	·20
6	51	·38	·01	·02	·03	·44	...	·16	·02	...	·07	·68
7	·64	·35	·19	...	·15	·05	·34	·32	...	...	·21	·20
8	·23	·11	...	·04	·39	·14	·30	·13	·14	...	·03	·01
9	·04	·15	...	...	·03	·07	·03	·16	·50	...	...	·13
10	...	·12	...	·09	·14	·08	·01	·01	·41	...	·63	...
11	·22	·05	·03	·06	·13	·06	...	·33	·63	...	·07	·18
12	·77	·02	...	·08	·01	·02	...	...	·63	...	·05	·56
13	·63	·27	·09	·05	·36	·03	·35	·06	·08	·40	·08	·27
14	·58	·35	·50	·03	·05	·06	...	...	·93	...	·20	·23
15	·44	·37	·25	·46	...	·02	...	...	·13	...	·50	·06
16	·36	·02	·05	·08	·03	·09	...	...	·08	·08	·18	·21
17	·15	...	·12	...	·18	·43	·03	·28	·14	·20	·22	·13
18	·36	·15	·03	·21	...	·44	...	·36	·50	·01	...	·36
19	·33	·03	·01	·15	...	·30	...	·01	·41	·03	...	...
20	·18	...	·02	·06	...	·37	...	·05	·38	·06	...	·04
21	·32	·15	·05	·02	...	...	...	...	·43	·31	...	...
22	·10	·06	·13	...	...	·01	...	...	·21	...	·03	...
23	...	·14	·43	...	...	...	...	·38	...	·46	·01	·03
24	·03	·22	·05	...	...	...	...	·14	·07	·13	·06	·12
25	...	·38	·09	...	...	...	·04	·35	·06	·02	·23	·23
26	...	...	·20	·38	...	...	·06	·72	·09	·24	·04	·32
27	·02	...	·27	...	...	...	·11	·27	·02	·07	...	·06
28	·23	...	·07	...	...	...	...	...	...	·01	...	·14
29	·15		·02	...	...	·15	...	...	...	·46	·22	·11
30	·23		·06	...	·02	·08	...	·20	...	...	·82	·05
31	·42		·15		·08		·22	·22		·08		...
Totals.	8·96	4·64	3·29	2·22	1·97	4·28	1·94	5·11	6·96	2·60	4·02	5·60
Total since Jan. 1.	8·96	13·60	16·89	19·11	21·08	25·36	27·30	32·41	39·37	41·97	45·99	51.59

ON THE DAILY RAIN REGISTERS.

BEING very desirous that this Annual should increase, not only in the completeness of its representation of the rainfall in all parts of the British Isles, from a geographical point of view, if I may so term the gradual diminution of the large tracts of country hitherto (and in some places still) without any observer; but also that it may yearly become more available for the solution of the many unworked problems of rainfall inquiry, I have this year inserted ten registers *in extenso*. No doubt they are not pleasant reading, but I believe them to be useful, and to some extent a necessary accompaniment to the following tables of maximum falls. Incidentally, also, they may serve the subsidiary purpose of specimens of well-kept registers, being printed without a single alteration, from the blank registration forms now in general use.

MAXIMUM FALLS IN 1866.

THE following Tables containing the maximum fall on any day in the year at the several stations, and the per-centage which the said maximum was of the yearly total, are similar in all respects to those annually given for some years past, save that they are fuller.

The following remarks were appended to the first of these tables, that published in 1865, and the confirmation of the suggestion therein put forth, by the experience of subsequent years, seems so striking as almost to establish it as a law—one, it is true, which appears reasonable enough now that it has been proved, but which nothing but these tables would prove.

"It is believed that the plan adopted in this table of stating the maximum fall as a per-centage of the yearly total is not only novel, but affords the only ready means of estimating fairly the relative importance of various heavy falls. To take a strong case as an illustration: at Acol, near Margate, the maximum fall was 1·45 in., which was 9·2 per cent. of the entire fall in the year—that is to say, nearly one-tenth of the whole yearly amount fell in one day. At Seathwaite, a similar phenomenon would have required the fall on their wettest day to be 12·37 in., whereas the heaviest fall there was but 6·47 in. Of course at first sight a rainfall of 6·47 in. looks vastly more noteworthy than one of 1·45 in., but the relative importance is speedily reversed on reference to their relation to the annual totals. One very striking fact becomes clear from this table, which will be best illustrated by classifying the largest falls and the largest per-centages. It will then be seen that though in point of quantity the Western stations maintain their excess as well in individual falls as in the yearly totals, the heavy falls *there* are relatively hardly half so large as at the Eastern stations. In fact, with two or three exceptions, the classification resulting from these falls is a perfect guide to the geographical position of the stations. Or to put it in the plainest possible language, the rainfall at the Western stations is more uniform in its distribution than at the Eastern ones, where the fall is, so to speak, more spasmodic."

This inference has been amply confirmed by the experience of the two subsequent years, and can be demonstrated from any column of the

tables; therefore, words respecting it are needless. We must rather try to gather fresh information, and this seems to consist principally of two parts.

(1.) In 1864 the maximum per-centage was 13 per cent., and was recorded at West Retford; in 1865 it was also 13 per cent., and was recorded at Fleckney; in 1866 it was 10 per cent., and was recorded at Burton. These three stations are all within a circle of 25 miles radius, with Nottingham for the centre; of course this may be an accidental coincidence, but I incline to the opinion that it is in some way due to the central position of the district. It is also singular that the per-centages are so similar, as 13, 13, and 10, and especially when we remember that but for the wetness of 1866 they would have been almost identical. This has suggested to my mind the question whether they should not rather be made per-centages of the *mean* annual fall, instead of per-centages of the total of the year in which they fall.

(2.) The following abstract throws light on the persistent, rather than intermittent, character of the rainfall in 1866.

Largest Falls.					Largest Per-centages.				
		Depth.		Per Cent.			Per Cent.		Depth.
1864	average	3·47	...	6·3	1864	average	9·0	...	2·48
1865	,,	3·67	...	6·4	1865	,,	9·9	...	2·62
1866	,,	3·40	...	4·4	1866	,,	8·1	...	2·31

But it is shown still more plainly by the gross average per-centage of the maximum at *all stations* in the two years; in 1865 the average (431 stations) was 5·1; in 1866 the average (590 stations) was 3·7, or 27 per cent. less. This value I think will be found not to differ widely from the mean excess of the rainfall in 1866 over 1865.

Largest Falls.					Largest Per-centages.				
Date.	Div.	Station.	Inches.	Per Cent.	Date.	Div.	Station.	Per Cent.	Inches.
Nov 16	X.	Seathwaite	6·38	4	Aug 28	VI.	Burton	10	2·48
,,	VIII.	Stonyhurst	3·87	6	,,	VII.	Belton	9	3·01
15	XI.	Beddgelert	3·81	3	,,	III.	Althorp	9	2·50
,,	,,	Snowdon	3·75	3	,,	IX.	Marton Hall	9	2·25
,,	,,	Rhiwbryfdir	3·45	3	July 30	X.	Hendon Hill	9	2·45
16	X.	Lesketh How	3·26	3	,, 28	VI.	Leamington	8	2·14
15	,,	Low Nook	3·16	3	June 1	,,	Orleton	8	2·65
Aug 28	V.	Bodmin	3·16	6	Jan. 13	II.	Bromley Common	8	2·53
Nov 16	X.	The Howe	3·14	3	Aug 29	VII.	Loughboro'	8	2·80
Aug 28	V.	Altarnum	3·09	4	,,	,,	Grantham	8	1·79
,,	VII.	Belton	3·01	9	28	,,	Derby	8	2·66
Aprl. 2	XI.	Llanberis R. V. H	2·92	3	Jan. 11	II.	Aldershot	7	2·16
July 29	XII.	Wanlockhead	2·90	4	Aug 29	III.	Conington Cas. ...	7	2·00
Sep. 5	XI.	Tintern Abbey ...	2·86	6	June 4	IV.	Ixworth	7	1·90
Jan. 13	XVIII	Waternish	2·85	3	July 28	VII.	Mickleover	7	1·76
Aug 29	VII.	Loughboro'	2·80	8	30	X.	Seaham	7	1·90
		Mean	3·40	4·4			Mean	8·1	2·31

Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.	Date	Div.	Station.	Depth.	Per cent of Annual Fall.
		JANUARY.			11	I.	Guildhall	1·06	4
1	XI.	Sirhowy	1·23	3	,,	,,	Offord Road	1·25	4
,,	XIX.	Kirkwall	·90	4	,,	,,	Southgate	1·60	5
2	X.	Derwent Island	1·85	3	,,	,,	Edmonton	1·19	4
,,	XI.	Cochsidia	1·10	3	,,	II.	Bourley	2·09	6
,,	XII.	Dalbeattie	1·62	3	,,	,,	Aldershot	2·16	7
,,	,,	New Galloway	1·82	3	,,	,,	Hartley	·86	2
,,	,,	Waterside	1·97	3	,,	,,	Cranbrook	1·42	4
,,	,,	Carsphairn	1·76	3	,,	,,	New Falconhurst	1·87	5
,,	,,	New Cumnock	1·72	3	,,	,,	Linton Park	1·35	5
,,	XV.	Cardross	1·50	2	,,	,,	Sydenham	1·13	3
,,	,,	Castle Toward	1·55	2	,,	,,	Deptford	1·00	3
3	XI.	Glyn Padarn	2·25	3	,,	,,	Dale Park	1·73	4
5	III.	Wisbech N. Brink.	·99	4	,,	,,	Uckfield	1·89	6
6	XI.	Swansea	·94	3	,,	,,	Maresfield	1·25	4
,,	,,	Dinorwic Quarry	2·40	3	,,	,,	Forest Lodge	2·00	6
10	I.	Islington	1·35	5	,,	IV.	Epping	1·06	4
,,	II.	Guildford	1·44	5*	,,	,,	Sheering	1·25	5
,,	,,	Brixton	1·50	5	,,	V.	Upwey	1·67	2
,,	,,	Goudhurst	·98	3	,,	,,	Shaftesbury	1·80	4
,,	,,	Charthan	·77	3	,,	,,	Ridgeway	1·91	4
,,	,,	Beckenham	1·20	4	,,	,,	Bishops Teignton	1·78	5
,,	,,	Yapton	1·28	4	,,	,,	Sidmouth	1·27	4
,,	,,	Glynde	1·24	3	,,	,,	Pentillie	2·50	4
,,	,,	Ryde	1·77	5	12	II.	Ketches	1·14	4
,,	,,	St. Lawrence	1·10	4	,,	XI.	Clynnog	1·38	3
,,	,,	Leigh Park	1·05	3	,,	XX.	Borrisoleigh	1·46	4
,,	,,	Loperwood	1·15	3	13	II.	Croydon	1·83	6
,,	,,	Wainsford	1·26	4	,,	,,	Hunton Court	·88	3
,,	,,	Carbury	1·40	4	,,	,,	Bromley Common	2·53	8
,,	,,	Bedhampton	1·21	4	,,	,,	Chobham	1·35	5
,,	,,	Englefield	·91	3	,,	,,	Welford Park	1·78	5
,,	III.	Hemelhempstead	·88	3	,,	,,	Landport	1·06	3
,,	IV.	Billericay	·82	3	,,	V.	Dinder	1·51	4
,,	V.	Gillingham	1·56	5	,,	XVIII	Waternish	2·85	3
,,	,,	Ham	1·28	3	14	,,	Clunes	1·82	3
,,	,,	La Morna	1·18	3	15	IV.	Leyton	1·01	3
,,	,,	Blackmoor	1·20	3	21	,,	Hillington	·74	3
,,	,,	Belgrave	1·97	5	,,	XI.	Dolgelly	1·51	2
,,	,,	Salcombe	1·63	4					
,,	,,	Brampford Speke	1·39	4			FEBRUARY.		
,,	,,	Budleigh	2·00	5	5	XVI.	Deanston	1·11	2
,,	,,	Helstone	1·45	3	9	II.	West Dean	·83	2
,,	,,	Penarth	1·40	3	11	,,	Petworth	1·14	3
,,	,,	Long Sutton	1·02	3	,,	,,	Ryde St. John's Park	·76	2
,,	,,	Bath Lit. Inst.	·98	3	,,	,,	Cadland	1·63	4
,,	XI.	Guernsey	1·63	4	,,	,,	Wantage	·82	3
,,	,,	,, Grange Road	1·53	3	12	,,	Tunbridge	1·25	4
,,	,,	Alderney	1·12	3	14	XVI.	Nookton	1·02	3
11	I.	Staines	1·50	5	,,	,,	Arbroath	·95	4
,,	,,	Pimlico	1·17	4	,,	XVII.	Aberdeen	·87	3
,,	,,	Spring Gardens	1·14	4	15	,,	New Pitsligo	·87	3

* Jan. 10–11th.—The heavy fall on this day, consisting partly of snow and partly of rain, was bounded on the North by a line running from Bodmin to Bristol, thence to Oxford, and on to Ipswich.

Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.
22	XVIII	Beaufort Castle ...	·95	3
27	IV.	Somerleyton	1·40	5
,,	,,	Geldeston	·99	4
,,	,,	Norwich	1·76	6
,,	,,	Mattishall.....	·96	4
		MARCH.		
5	XVI.	Montrose	·82	4
6	XVII.	Braemar	·81	2
,,	,,	Blackstock	·98	3
23	II.	Fernhurst	1·00	3
,,	XI.	Rhydwen	1·64	3
,,	,,	Llanfairfechan	1·20	3
,,	XV.	Arddaroch.....	2·05	2
,,	XX.	Cordangán.....	1·96	6
,,	XXI.	Fenagh	1·32	4
,,	,,	Carlow	·86	3
,,	,,	Skerries.....	·81	3
24	V.	Fullands	1·16	4
,,	XIII.	Thirlestane	2·00	5
,,	XIV.	Newmains.....	·95	2
,,	XXIII	Belfast L. H.	1·00	3
		APRIL.		
2	XI.	Llanberis R.V.H....	2·92	3
28	II.	Sheerness	1·03	4
,,	,,	Sandhurst.....	·68	3
,,	,,	Cumberland Lodge.	·73	2
,,	III.	Oxford Obs.	·97	3
,,	,,	Sutton Park	·80	3
,,	IV.	Fulbourne	·68	3
,,	XII.	Sunnyside.....	·86	2
29	II.	Basingstoke	·98	3
30	IV.	Shoeburyness	1·65	7
		MAY.		
11	XIV.	Baillieston	1·00	2
,,	XVIII	Bogside	·98	3
26	V.	Bridport	1·25	3
27	,,	Chiltern	·74	2
30	I.	Dorset Square	·84	3
31	II.	Brogdale	·78	3
,,	III.	Banbury	1·18	4
,,	VI.	Wolverhampton ...	1·54	5
,,	,,	Bromsgrove	1·06	4
,,	,,	Calthorpe St.	1·26	4
		JUNE.		
1	III.	Banbury	1·25	4
,,	,,	Leominster	1·29	4
,,	VI.	Orleton	2·65	8
4	I.	Chiswick	1·02	3
4	II.	Dover	1·51	4
,,	IV.	Epping	1·06	4
,,	,,	Barton Hall	1·45	5
,,	,,	Ixworth.....	1·90	7
,,	,,	Bexwell.....	1·20	5
,,	XXII.	Holywell	1·02	3
5	I.	Twickenham.....	1·00	4
,,	II.	Long Wittenham...	1·41	4
,,	,,	Woodside	·91	3
,,	,,	Crossness	1·64	6
,,	XI.	Aberdaron.....	1·10	2
12	VIII.	Outwood	1·60	3
,,	,,	Strines Dale.....	1·12	2
,,	,,	Brushes Clough ...	1·70	3
,,	,,	Stockport	1·81	6
,,	X.	Wolsingham.....	1·50	4
,,	XI.	Brynderwen	2·27	3
13	,,	Penrhyn	2·11	4
16	IV.	Thorpe	·79	3
,,	,,	Acle	1·01	4
,,	,,	Cossey	·84	3
17	XXII.	Cregg Park	·72	2
21	I.	Chiswell St.	·93	4
,,	,,	Dorset Sq.	·84	3
,,	II.	Epsom	1·13	4
,,	,,	Clapham	1·40	5
,,	IV.	High Roding	1·25	5
22	I.	Mile End	1·40	6
,,	,,	Hampton Wick ..	·99	4
,,	II.	Deptford	1·00	3
,,	,,	Balcombe Place ...	·99	3
27	II.	Strathfieldsaye	1·40	4
,,	,,	,, Turgiss ...	1·85	6
,,	,,	Round Oak	1·70	5
,,	V.	Penhill	·90	3
,,	,,	Ilchester	1·22	4
,,	,,	Swanswick	1·14	4
,,	VI.	Fairford...	1·25	4
30	I.	Spring Grove	1·12	4*
,,	,,	Camden Town	1·33	4
,,	,,	Hampstead	1·59	6
,,	,,	Highgate	1·81	6
,,	,,	Pinner Hill	1·51	4
,,	,,	Mill Hill	1·68	6
,,	III.	King's Langley ...	1·10	3
,,	,,	Fielde's Weir	·98	3
,,	,,	Hatfield.....	1·06	4
,,	,,	Bayfordbury.....	1·07	4
,,	,,	Berkhempstead.....	1·15	3
,,	,,	Much Hadham.....	1·24	4
,,	IV.	Dunmow	·85	3
,,	,,	Cas. Hedingham ...	·87	3
,,	V.	Tytherton	1·03	3
,,	,,	Calne.....	·79	2

* June 30th.—Max. for this day due to a thunderstorm, most severe in the Metropolis.

Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.
		JULY.		
1	I.	Brittanny House ...	1·90	6
,,	II.	Salehurst	1·17	3
,,	,,	Tong	·83	3
,,	IV.	Carlton Hall.....	1·02	3
,,	,,	Ipswich	1·05	3
2	III.	Stretham	·63	3
4	XII.	Hawick	1·35	4
,,	,,	Silverbut Hall	1·25	4
,,	XXIII	Armagh.....	·94	3
6	II.	Acol	·85	3
,,	III.	Granchester Mill ...	·76	3
13	XVI.	Barry.....	·70	2
14	XVIII	Farraline	1·40	3
27	XI.	Denbigh.....	1·23	4
28	III.	Aspenden	·92	3
,,	,,	Biggleswade	·82	4
,,	IV.	Heydon	1·25	4
,,	VI.	Henley in Arden ...	1·31	4
,,	,,	Leamington	2·14	8
,,	VII.	Tickencote.....	1·41	5
,,	,,	Welton-le-Marsh ...	1·20	4
,,	,,	Fairfield.....	1·45	4
,,	,,	Brampton	1·63	4
,,	,,	Buxton	2·51	3
,,	,,	Mickleover	1·76	7
,,	VIII.	Kingsley	1·34	4
,,	,,	Northwich.....	1·55	4
,,	,,	Penketh.....	1·25	3
,,	,,	Old Trafford	1·28	3
,,	,,	Eccles	2·11	5
,,	,,	Rufford	1·93	4
,,	,,	Vale House	2·08	4
,,	IX.	Broomhall Park ...	1·85	5
,,	,,	High Hazles	1·54	5
,,	,,	Barnsley	1·62	5
,,	,,	Tickhill.....	1·60	5
,,	,,	Longwood	2·11	5
,,	,,	Dalton	2·71	6
,,	,,	Westwood	1·85	5
,,	,,	Thicket Priory	1·02	4
,,	,,	Bootham	1·22	5
,,	X.	Allenheads	2·06	4
,,	XII.	South Cairn	1·20	2
,,	XIV.	Cessnock Park	1·27	3
,,	XVI.	Muthill	1·18	2
29	III.	Stanground	·82	3*
,,	,,	Wisbech Obs.	1·11	4
,,	VII.	Greetham	1·54	4
,,	,,	Wytham	1·45	6
,,	,,	Boston	1·34	5
,,	,,	Belper	1·67	5
,,	IX.	Well Head	1·98	5
29	IX.	Queensbury	2·27	4
,,	,,	Doe Park	2·17	4
,,	,,	Ilkley.....	1·40	3
,,	,,	Coney Street	1·10	4
,,	,,	Holme-on-S.M.....	1·35	5
,,	X.	Bishopwearmouth...	1·45	6
,,	XII.	Crichton Asylum ...	1·14	3
,,	,,	Dumfries	1·01	3
,,	,,	Glencairn	1·77	3
,,	,,	Wanlockhead	2·90	4
,,	XIII.	Smeaton.....	1·10	5
,,	,,	Glencorse	1·40	4
,,	,,	Inverc sk	1·46	5
,,	XIV.	Bothwell Castle.....	1·36	4
,,	,,	Hill End	1·29	4
,,	XV.	Blairhoyle	1·20	2
,,	XVI.	Dollar.....	1·76	4
,,	,,	Burntisland	1·45	6
,,	,,	Perth	1·89	4
,,	,,	Rosemount	1·07	4
,,	,,	Logierait	1·45	4
,,	,,	Kettins	1·44	5
,,	XVII.	Aberdeen Hospital .	·78	3
,,	XVIII	Fearn.....	·93	4
,,	XXIII	Belfast, Old Park ...	1·18	3
30	IX.	Leeds P. Hall	1·20	5
,,	X.	N. Shields...	1·46	6
,,	,,	Dinsdale	1·25	4
,,	,,	Ushaw	1·37	5
,,	,,	Seaham	1·90	7
,,	,,	Hendon Hill.....	2·45	9
,,	,,	Gateshead	1·36	5
,,	,,	Bywell	·95	3
,,	XIII.	Mungo's Walls	1·50	5
,,	XVI.	Balfour	1·40	4
,,	XVIII	Culloden	·96	4
31	IX.	Whitby	1·55	6
,,	X.	Newcastle-on-Tyne.	1·28	6
,,	,,	Brenckburn	2·00	6
,,	,,	N. Sunderland	1·61	6
,,	XII.	Springwood Park...	1·15	4
		AUGUST.		
1	XI.	Llanfairynghornwy.	1·12	3
3	XV.	Stuckgown	2·23	2
6	XI.	Pembroke	1·27	3
11	V.	Barnstaple.....	·85	2
,,	XI.	Jersey Millbrook ...	1·17	3
,,	,,	,, St. Heliers...	1·00	3
23	III.	Streatley	1·60	5
25	XXII.	Hazlewood...	1·00	2
,,	,,	Markree.....	1·51	4
27	XI.	Talarvor.....	1·35	3

* July 29th.—Heavy rain in the Midland Counties, South Yorks, and the South and East of Scotland. At Derby rain began at 10 p.m., and lasted till 8 a.m. 30th.

Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.
27	XI.	Kilgerran	2·24	5
,,	V.	Liskeard	1·42	2
28	II.	Shirley Warren	·99	3*
,,	III.	Althorpe	2·50	9
,,	,,	Waresley	1·20	5
,,	,,	Tetworth	1·54	6
,,	,,	Abington Piggotts	1·51	6
,,	,,	Cambridge Obs	·71	3
,,	,,	,, Beech Ho.	·78	3
,,	,,	,, Brook Ho.	·78	4
,,	,,	Sibford	1·24	4
,,	IV.	Yaxley	1·43	5
,,	V.	Pencarrow	2·50	5
,,	,,	St. Austell	1·20	2
,,	,,	Hingston	1·91	3
,,	,,	Bodmin	3·16	6
,,	,,	,, Fore Street	2·60	5
,,	,,	Treharrock	2·78	6
,,	,,	Roscarrock	2·41	5
,,	,,	Altarnum	3·09	4
,,	VI.	Woolstaston	1·74	4
,,	,,	Church Aston	1·75	6
,,	,,	Weston-u-Lyzziard	1·83	7
,,	,,	Ellastone	2·64	6
,,	,,	Burton	2·48	10
,,	,,	Wolverhampton	1·53	5
,,	,,	St. John's Square	1·74	5
,,	,,	W. Malvern	1·19	4
,,	,,	Pailton Ho	1·69	6
,,	,,	Doveridge	2·35	7
,,	VII.	Fleckney	1·73	5
,,	,,	Owston	1·50	5
,,	,,	Dalby Hall	1·27	4
,,	,,	Belton	3·01	9
,,	,,	Hinckley	1·40	5
,,	,,	Knaptoft	2·05	6
,,	,,	Loddington	1·64	5
,,	,,	Ryhall	1·87	7
,,	,,	Stubton	1·53	6
,,	,,	Braunston	1·75	7
,,	,,	Derby	2·66	8
,,	,,	W. Hallam	1·78	5
,,	,,	Chatsworth	1·50	4
,,	,,	Sudbury	2·37	7
,,	IX.	Marton Hall	2·25	9
,,	XI.	Pembrey	1·43	3
,,	,,	Carmarthen	2·29	5
,,	,,	Caldy Isle	2·15	6
29	II.	Battersea	·95	3
,,	III.	Kensworth	1·19	4
,,	,,	Woodfield	·96	4
29	III.	Hitchin	·92	3
,,	,,	Hamerton	1·52	6
,,	,,	Conington Cas.	2·00	7
,,	,,	Cardington	1·10	4
,,	IV.	Clement's Hall	1·12	4
,,	,,	Culford	1·28	4
,,	,,	Outwell	1·74	7
,,	,,	Reepham	1·50	6
,,	VI.	Haughton Hall	1·66	6
,,	,,	Cockshutt	1·96	7
,,	,,	Ludlow	1·70	5
,,	,,	Wrottesley	1·23	4
,,	,,	Barlastone	1·86	5
,,	,,	Rugby	2·18	7
,,	VII.	Wigston	1·30	4
,,	,,	Leicester	1·41	5
,,	,,	Loughborough	2·80	8
,,	,,	Melton	1·33	5
,,	,,	Belvoir	1·08	4
,,	,,	Grantham	1·79	8
,,	VIII.	Macclesfield	1·73	4
,,	,,	Runcorn	·97	3
,,	IX.	Ripon	1·91	6
,,	,,	Yarm	1·70	7
,,	X.	Great Strickland	1·25	3
,,	,,	Dinsdale	1·25	4
,,	,,	Whitfield	1·35	3
,,	XI.	Presteign	1·23	3
30	III.	Wellingborough	1·17	5
,,	,,	Stotfold	1·05	5
,,	,,	Watford Ho	·99	3
,,	,,	Ampthill	1·32	5
,,	VI.	Bloomsbury St.	1·30	4
,,	VII.	Highfield Ho	1·70	6
,,	VIII.	Wrenbury	1·41	5
,,	,,	Macclesfield T. H.	1·48	4
,,	IX.	Scarborough	1·82	6
,,	X.	Esplanade	1·48	5
,,	XI.	Haverfordwest	1·84	3
		SEPTEMBER.		
1	V.	Marlborough	·92	3
,,	,,	,, College	·90	2
,,	,,	Mildenhall	1·04	3
,,	XI.	Lampeter	1·24	2
,,	,,	Llanstrephane	1·53	4
,,	,,	Aberystwith	1·50	3
2	,,	Henllys	1·56	4
3	V.	Tavistock	1·75	4
4	,,	Evesham	1·60	5
,,	,,	Dorchester	·88	2

* August 28th.—The great downpour of this date was chiefly in that part of the Midland Counties included by a line from Ipswich to Worcester, thence to Chester, and thence to Louth. There was also a local very heavy rain for about 10 miles round Bodmin, and another at Carmarthen.

Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.
4	V.	Dartmoor	2·23	2
,,	,,	Strathculm Ho	1·30	3
,,	,,	Springfield	1·22	3
,,	,,	Meshaw	1·80	4
,,	,,	Buckish	1·80	3
,,	,,	Northam	1·52	4
,,	,,	Bratton Fleming	2·28	4
,,	,,	Holford	1·30	4
,,	,,	Burnham	1·33	4
,,	VI.	Rocklands	1·55	4
,,	XI.	Chepstow	2·35	5
,,	,,	Llanfrechfa	2·11	4
,,	,,	Tynant	2·29	4
,,	,,	Plas Brereton	1·06	3
5	V.	Broadhembury	·95	3
,,	,,	Castle Hill	1·52	3
,,	,,	Wellington	1·86	5
,,	,,	Wiveliscombe	1·29	3
,,	VI.	Berkeley	1·67	5
,,	,,	Keynsham Bank	1·80	6
,,	XI.	Tintern	2·86	6
,,	,,	Cowbridge	2·40	6
,,	,,	Cardiff (Ely)	2·52	5
,,	,,	Llandudno	·78	2
6	V.	Barnstaple	·85	2
,,	,,	Truro	1·40	3
,,	,,	St. Agnes	1·17	3
,,	IX.	Harrogate	1·38	4
,,	XI.	Bodfaen	1·44	3
7	,,	Merthyr Tydvil	1·51	3
8	II.	Hunton Court	·88	3
,,	,,	Maidstone	1·05	3
,,	,,	River Head	1·42	3
,,	,,	East Grinstead	1·39	3
9	,,	Hartlip	1·25	4
10	IX.	Ilkley	1·40	3
,,	XI.	Llangybi	1·10	2
12	XX.	Valentia	·87	2
,,	XXIII	Ardglass Cas.	1·10	3
13	XVII.	New Pitsligo	1·04	3
14	XXII.	Galway	·93	2
,,	XXIII	Londonderry	1·17	3
15	II.	Yapton	1·28	4
,,	XXIII	Londonderry L. I.	·95	3
16	II.	E. Peckham	1·07	4
,,	,,	Strood	1·18	4
,,	,,	Fernhurst	1·00	3
,,	IV.	Runham	·94	4
,,	,,	Birch Hall	1·09	4
,,	,,	Grundisburgh	·95	3
,,	IX.	Goole	1·00	4
,,	,,	Rastrick	2·50	6
16	IX.	Hull Manor H. St.	1·53	6
,,	,,	,, Beverley Road.	1·54	5
,,	XI.	Menaifron	·94	3
19	XV.	Callton Môr	1·10	2
20	XXII.	Doo Castle	·90	2
21	II.	Hythe	1·02	3
,,	,,	Horton Park	1·54	4
,,	,,	Canterbury	·78	2
,,	,,	Hollington	1·32	4
,,	XI.	Guernsey (Court Pl.)	1·30	3
,,	XVI.	Trinity Gask	1·22	3
22	II.	Rolvenden	1·05	3
,,	XI.	Sark	1·02	3
23	V.	Chalbury	1.12	3
28	VI.	Hereford Blue S.	1·04	4
,,	XI.	Hawarden	1·08	4
29	VI.	Broomy Hill	1·07	3
,,	,,	Stretton	1·65	6
,,	XIII.	Edinburgh Castle	1·40	5
,,	XVIII	Inverness	·96	3
		OCTOBER.		
17	XX.	Waterford	1·29	4
,,	XXI.	Courtown	1·69	5
,,	XXII.	Florence Court	2·08	4
18	III.	Sutton Park	·80	4
,,	IX.	Rotherham	1·22	4
,,	XII.	Comlongon Castle	1·29	3
,,	XX.	Carrick-on-Suir	1·80	5
,,	XXI.	Coollatine	1·31	4
,,	XXIII	Red Hills Ho	1·75	5
,,	,,	Moneydig	·93	2
19	VII.	Stoney Middleton	1·25	3
21	V.	South Petherton	·87	3
24	VI.	Dunsley Manor	1·15	4
,,	XV.	Stonefield	2·24	3
29	XIV.	Kilbarchan	2·00	3
,,	XVIII	Rosse Parsonage	1·82	2
30	XIV.	Blair	1·70	3
,,	,,	Gourock	1·85	3
,,	XV.	Bunessan	1·87	3
31	XVIII	Dingwall	·83	3
		NOVEMBER.		
10	III.	West Walton	·79	3
,,	V.	Mells	1·23	3
12	,,	Bath	·85	3
14	XIII.	Cobbinshaw	1·10	3
15	IV.	Wells	·98	4
,,	VIII.	Outwood	1·60	3
,,	,,	Oldham Gas W.	1·51	3
,,	,,	Standish	1·68	4
,,	,,	Picthorne	1·95	4
,,	,,	Bacup	2·10	3
,,	,,	Caton	1·97	4
,,	,,	Holker	1·87	4
,,	,,	Ulverstone	2·30	4
,,	,,	Monk Coniston	2·75	3

Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.	Date.	Div.	Station.	Depth.	Per cent. of Annual Fall.
15	IX.	Thornton	1·56	3	16	IX.	Ackworth	1·61	5
,,	,,	Skipton	2·15	3	,,	,,	Bradford	1·81	4
,,	,,	Arncliffe	2·16	3	,,	,,	Manywells	1·78	4
,,	X.	Whitbeck	1·78	4	,,	,,	Holbeck	1·75	5
,,	,,	Bootle	1·81	3	,,	,,	Braithwaite	1·67	3
,,	,,	Keswick	2·30	3	,,	,,	Sedbergh	2·23	3
,,	,,	Derwent Island	1·85	3	,,	X.	Mirehouse	1·75	3
,,	,,	Whinfell	2·44	4	,,	,,	Stainburn	1·43	4
,,	,,	Tarnbank	1·92	4	,,	,,	Higham	1·90	4
,,	,,	Silloth	1·20	3	,,	,,	Seathwaite	6·38	4
15	X.	Carlisle Cemetery	1·08	4	,,	,,	Kendal	2·20	4
,,	,,	Low Nook	3·16	3	,,	,,	High Close	2·79	3
,,	,,	The Briery	2·60	3	,,	,,	Lesketh How	3·26	3
,,	,,	Whelprigg	2·09	3	,,	,,	The Howe	3·14	3
,,	XI.	Rhiwbryfdir	3·45	3	,,	,,	Patterdale	2·62	3
,,	,,	Portmadoc	1·25	2	,,	XI.	Trawsfynydd	1·45	3
,,	,,	Beddgelert	3·81	3	,,	XXII.	Belfast W.W.	1·13	3
,,	,,	Bettwsycoed	1·99	3	17	IV.	Burnham	1·25	4
,,	,,	Bala	1·39	2	,,	IX.	King's Cross	1·09	3
,,	,,	Snowdon	3·75	3	,,	,,	Chellow Dean	1·33	3
,,	XII.	N. Balfern	1·51	3	18	IV.	Egmere	1·05	3
,,	,,	Cargen	1·26	3	23	XIX.	Invershin	1·24	3
,,	,,	Warmanbie	1·18	3	30	XX.	Killaloe	1·00	2
,,	XIII.	Wooplaw	·90	3	,,	XXIII	Belfast Queen's C.	1·61	4
,,	XIV.	Glasgow, St. G. Rd.	·90	2					
,,	XXII.	Hazlewood	1·00	2			DECEMBER.		
,,	,,	Owendoon	1·36	3	3	y.	Montpelier	1·33	4
,,	XXIII	Waringstown	·86	3	,,	XI.	Blaina	1·47	3
,,	,,	Antrim	1·03	3	,,	,,	Plas cwrt hyr	1·50	3
,,	,,	Leckpatrick	1·17	3	,,	,,	Rhayader	1·28	3
16	IV.	Holkham	·91	4	,,	,,	Broomcliff	1·66	3
,,	VII.	Gainsborough	1·20	5	,,	,,	Ebbw Vale	1·67	3
,,	,,	Killingholme	1·48	5	,,	XXI.	Newbridge	·53	2
,,	VIII.	Liverpool	·99	4	,,	XI.	Blaenyddol	2·38	3
,,	,,	Old Trafford (J. C.)	1·82	4	6	XIX.	Helmsdale	1·02	3
,,	,,	Royton	1·96	3	13	V.	Batheaston	·87	2
,,	,,	Heaton	2·10	4	,,	XVIII	Portree	2·42	3
,,	,,	Belmont	2·70	4	28	,,	Applecross	1·44	2
,,	,,	Stonyhurst	3·87	6	29	XVII.	New Byth	·84	2
,,	,,	Grange	2·14	4	,,	XVIII	Laggan	1·30	3
,,	,,	Blackburn	2·10	4	,,	,,	Glen Strathfarrer	2·32	3
,,	,,	Yealand	1·69	3					

ON THE MONTHLY TABLES.

THESE have been prepared in consequence of the enlargement of the *Meteorological Magazine* having precluded the republication (as in previous years) of the monthly tables therein given. Three conditions governed the selection of the returns:—(1) The distribution of the stations was fairly to represent all parts of the country; (2) The gauges were to be, as nearly as possible, at the same height—1 foot above the ground; and (3) They were to be of the same diameter—5 inches.

MONTHLY RAINFALL IN 1866.

ENGLAND.

County	Surrey.	Kent.	Sussex.	Hants.	Berks.	Herts.	Oxford.	Northampton.	Hunts.	Cambridge.
Station	Epsom.	Faversham.	Brighton.	Lymington.	Reading.	Ware.	Bicester.	Yardley-Hastings.	St. Neots.	Cam. Obs.
Ft. above Sea	135	...	90	100 ?	...	...	300 ?	260	35	88
January ...	3·95	3·78	4·30	4·85	4·08	2·79	2·90	2·66	1·72	2·02
February...	3·78	3·60	4·49	4·52	3·39	3·46	1·87	2·67	2·40	2·69
March	2·01	2·28	2·07	2·41	1·99	1·82	1·23	1·19	1·14	·97
April	2·14	2·24	1·77	1·85	1·91	2·05	2·41	1·40	1·79	1·39
May..	1·58	1·77	·70	1·57	1·45	2·15	2·14	1·97	1·52	1·24
June	3·42	2·37	2·32	1·96	2·00	3·37	2·47	2·31	1·98	2·29
July.....	2·44	2·29	2·57	·97	2·07	2·21	1·44	1·91	2·45	2·30
August ...	2·30	3·70	2·23	3·34	2·14	2·75	3·22	4·71	3·30	2·63
September.	4·26	3·80	6·09	7·40	5·34	4·03	5·65	3·21	3·22	2·42
October ...	2·01	·94	2·11	1·49	2·32	1·91	2·46	1·81	1·72	1·65
November.	1·43	1·75	2·24	1·87	1·40	2·18	1·75	1·43	1·60	1·56
December..	1·84	1·30	2·79	2·03	2·34	2·49	2·16	1·92	1·97	2·21
Totals	31·16	29·82	33·68	34·26	30·43	31·21	29·70	27·19	24·81	23·37

County	Essex.	Suffolk.	Norfolk.	Dorset.	Devon.	Cornwall.	Somerset.	Glo'ster.	Hereford.	Salop.
Station	Billericay	Ipswich.	Norwich.	Shaftesbury.	Chagford.	St Austell	Bath.	Quedgely.	Stretton.	Whitchurch.
Ft. above Sea	...	7	120	617	660	300	113	100 ?	170	...
January ...	2·95	2·99	2·69	6·03	10·21	7·17	5·02	3·45	3·03	2·02
February...	3·97	3·78	4·33	4·50	7·93	4·97	4·35	2·56	2·82	2·23
March	1·56	1·48	1·46	2·31	7·02	4·34	2·09	1·62	2·57	1·75
April	1·94	2·30	1·93	2·91	3·29	3·26	2·05	2·20	1·83	·82
May.....	1·61	2·89	1·68	1·78	3·73	3·19	1·09	·98	·75	·98
June	2·98	2·63	2·93	2·98	2·14	3·07	3·45	2·30	2·45	3·11
July.....	1·67	2·74	2·40	2·26	1·52	1·41	2·07	1·92	·80	2·46
August ...	2·10	2·50	·97	3·07	3·65	5·86	2·56	3·35	2·74	3·03
September..	3·84	4·12	2·74	7·78	9·97	8·50	6·89	6·85	5·49	5·31
October ...	1·35	·47	·75	3·15	2·41	2·97	1·75	2·49	2·40	3·60
November..	2·14	2·47	3·25	2·72	3·04	3·66	2·03	1·45	1·22	2·72
December..	2·53	2·33	2·42	3·51	6·24	5·37	3·40	2·34	1·47	2·01
Totals	28·64	30·70	27·55	43·00	61·15	53·77	36·75	31·51	27·57	30·04

County	Stafford.	Warwick.	Rutland.	Lincoln.	Cheshire.	Lancashire.	York.	Northumberland.	Cumberland.	Cumberland.
Station	Wolverhampton.	Leamington.	Ryhall.	Branston.	Runcorn.	Lancaster	Yarm.	Wallington.	Alston.	Keswick.
Ft. above Sea	500	195	...	...	15	120	80	398	1416	270
January ...	1·84	1·73	1·49	·86	2·30	5·90	1·32	3·48	7·88	10·65
February...	1·87	1·36	1·98	2·10	2·46	4·21	1·18	3·67	4·45	6·99
March	1·82	1·35	1·52	1·27	1·71	2·84	2·40	3·14	2·33	5·02
April	·72	1·57	1·23	1·28	1·06	·85	2·36	3·31	2·78	2·85
May..... ..	1·79	1·51	1·78	1·29	1·35	1·52	·77	1·49	1·58	1·03
June	3·23	1·95	2·27	2·95	3·92	4·25	2·06	1·96	1·99	2·38
July.....	1·74	3·36	3·50	3·26	3·41	4·51	4·60	3·12	4·52	5·00
August ...	3·95	3·68	3·84	3·76	4·26	5·19	3·44	3·23	3·88	7·11
September.	5·53	5·83	4·11	4·32	5·26	8·35	3·21	5·35	7·05	7·96
October ...	2·48	1·87	1·85	2·16	2·11	2·63	1·65	1·20	2·60	3·57
November..	2·13	1·80	1·80	2·39	3·93	6·68	1·67	3·01	5·52	8·95
December..	1·76	1·54	1·52	1·84	2·00	5·78	1·81	3·14	6·57	9·30
Totals	28·86	27·55	26·89	27·48	33·77	52·71	26·47	36·10	51·15	70·81

WALES.

County	Carmarthen.	Cardigan.	Cardigan.	Radnor.	Denbigh.	Merion'th	Carnarvon.	Channel.	Channel.	Channel.
Station	Pembrey.	Kilgerran	Aberystwith.	Presteign	Denbigh.	Dolgelly.	Llanfairfechan.	Guernsey	Jersey.	Sark.
Ft. above Sea	7	80	50	550	...	500	150	200	50	340
January ...	4·75	8·15	6·12	4·74	3·88	10·60	5·79	5·52	4·11	3·48
February...	3·29	3·86	3·97	4·78	3·37	4·06	4·39	3·66	3·30	3·64
March	3·86	5·22	2·85	3·44	1·57	5·86	3·74	2·20	2·67	1·96
April	1·66	1·39	·62	1·48	1·25	1·15	·57	1·80	1·72	2·00
May.....	·99	·80	1·85	·49	1·67	1·97	2·56	2·16	1·21	1·51
June	2·78	3·21	4·50	3·80	3·58	5·23	4·80	1·40	2·05	1·50
July.....	1·70	·82	1·92	1·80	3·35	2·68	1·99	1·66	1·77	1·55
August ...	4·21	4·35	4·37	3·65	3·42	5·85	2·45	2·48	3·68	2·70
September.	8·28	6·31	9·83	7·52	5·51	8·96	6·66	9·20	7·76	7·19
October ...	2·56	2·33	2·77	2·28	1·16	3·08	2·08	1·26	·82	·88
November.	3·55	4·11	4·85	2·07	3·23	6·68	4·37	2·81	2·49	2·12
December..	4·30	3·51	3·99	2·99	2·44	5·59	4·13	3·71	3·51	2·73
Totals	41·93	44·06	47·64	39·04	34·43	61·71	43·53	37·86	35·09	31·26

SCOTLAND.

County	Wigtown.	Edinburgh.	Renfrew.	Dumbarton.	Argyll.	Fife.	Aberdeen	Ross.	Ross.	Inverness
Station	N Balfern	Cobbinshaw.	Paisley.	Arddaroch.	Mull.	Cupar.	Cluny.	Applecross.	Alness.	Laggan.
Ft. above Sea	50	863	350	80	30	130	350	50	450	1000
January ...	7·53	5·60	12·20	14·00	8·14	3·33	1·79	9·91	3·39	4·09
February...	4·07	3·60	8·05	9·44	5·72	3·14	2·85	7·69	5·22	6·12
March	3·90	2·00	2·80	6·04	4·52	3·14	4·25	3·67	2·86	3·66
April	1·18	2·10	2·20	5·02	1·58	·90	1·90	2·28	1·56	2·06
May.....	1·17	1·90	1·80	2·50	1·11	·93	1·43	2·24	2·11	1·47
June	3·30	1·90	3·00	2·03	2·10	1·26	1·71	1·88	1·07	1·39
July.....	3·00	4·50	4·50	3·16	3·01	2·79	2·44	3·27	1·93	2·92
August ...	5·03	4·00	6·90	10·27	6·47	3·46	3·49	6·34	3·55	4·17
September.	5·83	4·10	8·70	10·10	6·74	2·92	2·61	5·83	4·17	4·69
October ...	3·24	2·70	6·00	4·81	5·74	2·14	2·94	4·86	2·29	2·12
November.	5·47	4·40	7·55	9·00	6·31	1·71	2·28	6·00	5·22	6·46
December..	4·15	5·10	10·50	12·98	7·49	3·40	2·91	9·76	6·72	7·44
Totals	47·87	41·90	74·20	89·35	58·93	29·12	30·60	63·73	40·09	46·59

IRELAND.

County	Tipperary	Tipperary	Wexford.	Carlow.	Dublin.	Galway.	Roscommon.	Cavan.	Londonderry.	Down.
Station	Clonmel.	Borrisoleigh.	Courtown	Carlow.	Skerries.	Gort.	Holywell	Red Hills.	Bellarena	Antrim.
Ft. above Sea	80	..	80	291	20	130	...	...	20	150
January ...	5·53	6·12	4·41	4·43	3·01	6·79	5·60	5·16	5·70	4·28
February...	2·38	4·28	2·27	2·16	1·97	3·28	2·20	2·92	4·25	2·25
March	4·90	2·87	4·51	3·20	3·09	2·85	2·48	3·28	2·61	2·73
April	3·01	2·62	2·92	2·41	2·49	1·42	1·87	2·97	1·24	1·49
May.....	1·61	1·88	1·70	·83	1·44	1·41	1·59	1·54	1·06	1·34
June	4·16	4·27	2·44	2·95	3·03	2·17	3·83	2·72	1·32	2·12
July.....	1·49	·86	1·14	·80	1·08	1·54	1·57	2·18	2·07	2·05
August ...	3·41	3·40	2·91	3·16	3·14	3·73	4·30	3·34	4·17	4·10
September.	4·23	4·74	4·47	3·59	2·86	5·26	5·40	4·41	3·35	3·73
October ...	2·22	2·64	2·80	2·05	2·52	2·03	2·45	2·64	2·34	1·79
November.	2·39	3·43	1·89	1·91	2·39	3·13	3·27	3·66	4·94	4·02
December..	4·04	4·84	2·93	3·33	2·23	5·13	3·81	4·28	5·45	3·12
Totals : ...	39·37	41·95	34·39	30·82	29·25	38·74	38·40	39·10	38·50	33·02

ARRANGEMENT OF GENERAL TABLES.

The divisions are the same as those adopted by the Registrars General of England and Scotland.

The boundaries of these divisions are shown on the map prefixed to *British Rainfall*, 1863.

The counties follow the same order as in the reports of the aforesaid officers.

An alphabetical list of the counties is given with the page or pages on which all returns from that county will be found.

The stations in each county are arranged in the order of their latitude from North to South.

In order to facilitate finding the fall in any part of the country, the first name is almost always that of a place given in *Bradshaw* or the *British Postal Guide ;* the second name is added occasionally, to fix accurately the site of Observation. In a very few instances, this second name is in [ ] instead of ( ) ; *it* shows the nearest town, which is then in an adjoining county.

The contents of the columns are sufficiently explained by the headings, except that in the column headed " diameter" figures will occasionally be noticed of a different type from the rest of the tables ; these figures indicate the length of the sides of rectangular mouthed gauges. These measurements are all in inches.

An asterisk * denotes that the gauge was tested before erection, and a † that it has been visited and examined since. A note of interrogation (?) implies doubt, not necessarily error. ... indicates the absence of information.

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ENGLAND AND WALES.

DIVISION I.—MIDDLESEX.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell
		Diameter.	Height Above Ground.	Height Above Sea Level	1866	
			ft. in.	feet.	inches.	
MIDDLESEX.						
Hampton Wick	T. J. Nelson, Esq.	5	1 1	27	27·73	197
Staines	H. St. J. Joyner, Esq.	5	0 6	52	28·93	179
Twickenham Observatory	A. Wiss, Esq.	...	0 9	34	25·81	150
Chiswick	R. Thompson, Esq.	12	3 9	14	29·04	207
Hammersmith, S.W.	F. J. Burge, Esq.	...	1 0	12	30·62	...
Spring Grove, W.	T. E. Wyatt, Esq.	5	1 0	65	29·40	201
Pimlico (Pulford St.)	F. Gaster, Esq.	8	8 0	21	32·23	191
„ (Bloomfield Terrace)	C. Harding, Esq.	8	6 2	20	27·97	192
Westminster(SpringGrdns),S.W.	J. W. Bazalgette, Esq.	8	6 8	36	29·12	160
London (Guildhall), E.C.	W. Haywood, Esq.	8	4 0	50	30·02	186
„ (Chiswell Street), E.C.	W. Fletcher, Esq.	...	51 0	...	23·31	139
„ (Mile End), E.	F. Charrington, Esq.	12	10 0	...	24·95	102
„ (Dorset Square,) W.	H. E. Segrave, Esq.	8	10 0	100	29·37	196
„ (Bromley) E.	C. H. Berger, Esq.	5	25 3	...	28·06	...
† „ (Camden Road), N.W.	G. J. Symons, Esq.	8	0 4	100	31·60	187
„ (Offord Road), N.	R. Strachan, Esq.	8	2 0	70	30·71	198
Hackney, N.E.	Dr. Tripe	8	0 6	40	31·40	...
Islington (St. Mary's Road, N.)	W. T. Reynolds, Esq.	5	1 0	90?	30·31	187
Upper Clapton	.....	...	2 5	90	32·32	.
Hampstead,N.W (Squire'sMount)	Rogers Field, Esq.	5	1 0	360	33·90	193
„ (The Grove)	H. Sharpe, Jun., Esq.	5	50 0	470	27·75	216
†Highgate Nurseries	J. Cutbush, Esq.	5	1 0	394	32·14	191
Uxbridge (Harefield Park)	W. F. Vernon, Esq.	8	0 8	290	25·78	165
Pinner Hill	W. A. Tooke, Esq.	9	3 8	410	35·75	200
Mill Hill, N.W.	E. G. Fawcett, Esq.	8	0 0	365	30·06	178
„ (Brittany House)	J. A. Hadden, Esq.	6	1 0	...	31·97	114
Lower Edmonton	Mr. J. Brown	10	0 9	...	28·13	158
Enfield (Nag's Head Lane)	W. C. Mylne, Esq.	...	3 0	89	33·68	186
Southgate (Chase Bank)	S. Hughes, Esq.	5	1 2	350	30·82	185
Winchmore Hill	T. Paulin, Esq.	8	...	...	32·41	...
Potters' Bar	Mrs. Kaye	3	0 8	...	32·46	148

DIVISION II.—SOUTH-EASTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell
			ft. in.	feet.	inches.	
SURREY.						
Godalming (Dunsfold)	W. L. Woods, Esq.	5	0 6	166	28·81	...
Guildford	Capt. James, R.E.	5	1 1	201	30·68	196
Dorking (West Street)	W. A. Marsh, Esq.	10	35 0	150 ?	34·74	165
„ (Box Hill)	E. Boorman, Esq.	8	4 0	500	36·15	...
Epsom	W. F. Moates, Esq.	5	1 2	135	31·16	193
Chobham	Dr. Ward	5	4 0	...	27·51	167
†Weybridge Heath	W. F. Harrison, Esq.	8	0 6	150	27·96	...
† „ (Village)	„ „ „	8	0 6	53	27·14	...
†Shepperton Weir	„ „ „	8	7 3	41	22·32	...
Bagshot (Park)	Sir J. Clark, Bt., F.R.S.	5	1 1	230	29·35	...
Croydon	Dr. Westall	5	1 6	152	32·38	155
„	„ „ „	8	30 0	236	29·22	...
Wimbledon	T. Devas, Esq.	12	3 0	170	25·96	178
*Brixton Hill	Miss Sweeting	5	1 0	127	30·69	208
Wandsworth (South Fields)	R. Coleman, Esq.	...	1 0	...	30·30	...
„ (West Hill)	J. E. Richard, Esq.	3	0 10	86	31·31	126
Clapham	H. Doxat, Esq.	5	0 11	80	28·81	177
†Kew Observatory	B. Stewart, Esq., F.R.S.	10	1 3	19	26·81	183
Battersea College	Rev. J. P. Faunthorpe.	9	0 0	13	28·81	163
KENT.						
†Tenterden (Maytham Hall)	R. Appach, Esq.	8	1 2	...	32·73	187
†Hythe	H. B. Mackeson, Esq.	8	0 8	12	32·57	195
†Dover (Castle Street)	H. J. Poulter, Esq.	5	2 2	16	36·95	...
† „ (Castle Keep)	„ „ „	5	99 0	512	12·73	...
†Hythe (Horton Park)	J. Kirkpatrick, Esq.	8	1 6	350	35·74	177
†Cranbrook (Hartley)	G. Pile, Jun. Esq.	5	4 0	...	35·77	228
† „ (Tillsden)	T. Pile, Esq.	...	0 3	...	39·76	208
†Goudhurst	Mr. G. M. Stevens	5	1 2	375	33·04	220
†Tunbridge	Dr. Fielding	5	1 0	71	37·21	226
Edenbridge (New Falconhurst)	J. G. Talbot, Esq.	5	1 0	400	39·35	185
†Staplehurst (Linton Park)	Mr. J. Robson	8	0 6	296	30·82	179
† „ (Hunton Court)	Mr. P. Goddard	8	0 6	...	30·78	162
†East Peckham	S. T. Harris, Esq.	5	2 0	76	28·00	156
†Faversham (Brogdale)	W. C. Stunt, Esq.	5	0 7	...	29·82	188
Charing (Otterden)	Rev. W. A. Paxton.	...	...	...	33·82	...
†Canterbury (Chartham)	C. T. Drew, Esq.	8	2 6	...	29·42	170
„ (Bridge Street)	Mr. J. Reid	5	0 10	51	32·52	189
†Maidstone (Soverfield)	F. Dobell, Esq.	20	1 0	...	35·16	...
† „ (Fant Road)	J. H. Baverstock, Esq	7	1 3	60	32·30	183
„ (Larkfield)	Rev. N. Dimock	5	3 6	...	32·79	...
†Seven Oaks (Riverhead)	Rev. J. B. Murdoch	5	1 0	...	41·13	185
†Westerham (Chartwell)	J. C. Colquhoun, Esq.	5	0 6	500	34·41	...
†Sittingbourne (Tong)	G. Eley, Esq.	5	2 6	2	29·52	178
† „ (Hartlip)	W. Bland, Esq.	4	2 0	159	33·95	...
†Ramsgate (Cannon Brewery)	R. Cramp, Esq.	12	7 6	78	25·50	155
*†Margate (Acol)	E. S. Lendon, Esq.	5	1 0	60	28·46	...
West Wickham	Rev. J. T. Austen	12	1 2	380	36·25	...
Bromley Common, S.E.	Rev. A. Rawson	8	1 3	250	33·27	178

DIVISION II.—SOUTH-EASTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which .01 or more fell.
			ft. in.	feet.	inches.	
KENT (*con*).						
Foot's Cray (Sidcup)	Miss Berens	...	...	...	31·04	...
Strood	J. S. Hewitt, Esq.	5	0 9	15	34·00	160
†Sheerness Water Works	J. Lund, Esq.	5	1 0	9	28·09	161
† „ „ „	„ „	5	70 0	79	15·79	134
Lee (Blessington Road)	J. Grant, Esq.	10	4 9	49	31·47	...
†Beckenham	C. O. F. Cator, Esq.	8	0 3	157	30·47	194
Sydenham (Lethen Grange)	G. F. Chambers, Esq.	5	1 0	260?	31·62	195
Deptford (Pumping Station)	J. Grant, Esq.	10	3 8	18	33·28	188
†Bexley Heath (Welling)	H.S.H. Wollaston, Esq.	6	6 0	150	29·23	...
Crossness [Barking Reach]	J. Grant, Esq.	11	0 8	5	29·10	149
WEST SUSSEX.						
Bognor (Aldwick)	H. Upton, Esq.	5	1 0	10	25·83	...
Arundel (Yapton)	R. Redford, Esq.	5	1 0	24	33·20	180
Emsworth (West Thorney)	W. L. Woods, Esq.	5	0 10	10	28·69	...
Chichester (Infirmary=Museum)	W. Hills, Esq.	5	0 6	'20	32·18	...
„ (Westgate)	Dr. Tyacke	4	0 6	15?	30·08	...
„ (Shopwyke)	Rev. G. H. Woods	8	1 3	61	32·74	...
Arundel (Dale Park)	J. C. Fletcher, Esq.	11	3 0	316	41·12	148
Steyning	Rev. H. Ingram	5	1 2	80?	43·45	194
Chichester (West Dean)	H. Paxton, Esq.	8	1 4	250	40·70	196
„ (Chilgrove)	W. Leyland Woods, Esq.	5	0 6	284	36·66	...
„ (Bepton Hill)	„ „ „	5	0 6	554	41·03	...
Petworth	Rev. C. Holland	5	1 6	...	35·57	157
Fernhurst [Haslemere]	Miss E. A. Salvin	8	0 10	330?	33·39	146
Milland House [Liphook]	Rev. J. M. Heath	18	25 0	322	34·48	...
Horsham (St. Leonard's Lodge		...	1 6	300	33·09	...
EAST SUSSEX.						
Pevensey	M. Vidler, Esq.	8	4 0	10	23·66	172
Brighton	Dr. Kebbell	12	4 0	45	31·25	...
„ (Water Works)	Brighton Water Co.	5	1 0	90	33·68	...
†Hastings (High Wickham)	E. Field, Esq.	5	1 2	212	28·65	...
† „ (Bleak House)	Mr. J. Banks	8	1 3	80	32·03	147
† „ (Hollington)	Capt. Lewis	5	1 0	286	33·94	186
Lewes (Glynde)	Mr. J. McLeod	5	3 6	45?	37·32	170
†Battle	F. Webster, Esq.	5	1 3	...	36·99	...
†Uckfield	C. L. Prince, Esq.	12	6 0	149	33·79	149
† „ (Molesey Gore)	F. Brodie, Esq.	8	0 6	112	33·40	...
†Newick (Ketches)	Miss Shiffner	8	0 5	150?	30·81	179
†Buxted Park	Col. Harcourt	12	7 0	200	41·05	...
†Maresfield (Rectory)	Rev. E. Turner	8	1 2	250	34·34	171
† „ (Forest Lodge)	Captain W. Noble	8	1 2	232	34·73	178
†Salehurst (Church House)	Mr. S. Boorman,	6	4 2	...	36·79	192
Cuckfield (Balcombe Place)	J. A. Hankey, Esq.	8	1 3	340	38·74	187
East Grinstead	U. V. K. Stenning, Esq.	5	1 3	400?	40·20	209
HAMPSHIRE.						
Isle of Wight (St. Lawrence)	Rev. C. Malden	6	1 0	200	28·60	188
„ „ (Ryde)	Mr. R. Taylor	12	7 0	15	36·32	174
„ „ (St. John's Park)	G. J. Sayce, Esq.	5	0 8	70	35·76	181

DIVISION II.—SOUTH-EASTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft.	feet.	inches	
HAMPSHIRE—(*con.*)						
Isle of Wight (Osborne)	J. R. Mann, Esq.	8	0 6	172	34·17	185
Christchurch (Carbury)	F. Moser, Esq.	8	0 7	80?	35·09	193
Lymington (Wainsford)	H. Fawcett, Esq.	5	1 2	100?	34·26	228
Southampton (Cadland)	A. H. Hogg, Esq.	8	4 6	100	42·01	199
Fareham	H. Sharland, Esq.	6	0 2	26	39·45	...
Havant (Bedhampton)	J. N. Hillman, Esq.	5	1 0	...	30·71	195
„ (Leigh Park)	W. H. Stone, Esq.	8	0 8	40?	34·12	162
Southampton, Ordnance Survey Office	Col. Sir H. James, R.E. F.R.S.	5	1 3	75	38·04	188
		14	18 6	92	31·02	185
Southampton (Loperwood)	H. K. Pearce, Esq	8	0 4	197	35·67	204
„ (Eling House)	W. C. Spooner, Esq.	...	1 0	20	33·92	...
„ (Shirley Warren)	R. C. Hankinson, Esq.	5	4 0	110	35·12	192
Winchester (Otterbourne)	J. B. Yonge, Esq.	5	1 3	112	37·62	188
Petersfield (Heath Lodge)	Rev. H. Haigh	8	1 0	200	44·86	194
„ (Liss)	G. E. Coryton, Esq.	7	0 8	...	43·83	...
New Alresford (Arle Bury)	F. Marx, Esq.	4	1 6	308	37·98	...
Selborne (The Wakes)	T. Bell, Esq.	...	4 0	500?	37·48	177
Alton	P. Crowley, Esq.	8	1 0	...	35·92	159
Aldershott	Mr. J. Arnold	8	0 6	325	33·66	194
„ „ „	„ „ „	8	3 0	328	32 19	...
„ „ „	„ „ „	...	6 0	331	31·64	...
„ „ „	„ „ „	8	25 0	350	24·24	194
„ (Bourley—2 miles W.)	Corporal Dagnall, R.E.	8	1 0	370	37·09	189
Basingstoke (The Vyne)	W. Wiggett Chute, Esq.	8	1 2	...	31·75	146
„ „ „	„ „ „	3	0 11	...	32·62	146
Strathfield Saye	Rev. C. H. Griffith	...	1 0	...	32·90	159
„ Turgiss	„ „ „	5	4 0	269	33·10	192
BERKS.						
Sandhurst Royal M. College	Dr. Collins	...	5 0	246	20·22	192
Windsor (Cumberland Lodge)	Hon. Maj.-Gen. Hood	5	1 0	200	29·56	183
„ (Parkside)	W. Menzies, Esq.	...	6 0	...	30·14	...
„ (Clewer House)	J. O. Harris, Esq.	5	1 2	...	30·40	...
„ (Woodside)	W. Devas, Esq.	5	0 10	...	28·62	197
Reading (Englefield)	E. Robinson, Esq.	5	1 0	...	30·43	166
Newbury (Welford Park)	Mr. C. Ross	5	0 11	...	33·80	205
„ (Greenham)	J. Ward, Esq.	...	1 0	235	33·53	203
„ (Speen)	Rev. L. M. Majendie	5	1 0	...	30·09	...
Maidenhead (Ray Lodge)	.....	6	2 0	...	36·07	...
Streatley	Rev. J. Slatter	...	0 4	100	32·12	156
*Wantage	E. C. Davey, Esq.	5	12 8	185	30·09	176
Wallingford (The Castle)	J. Kirby Hedges, Esq.	5	0 9	175	30·00	175
Long Wittenham	Rev. J. C. Clutterbuck	12	1 6	170	31·69	188

DIVISION III.—SOUTH MIDLAND COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge: Diameter.	Rain Gauge: Height Above Ground		Rain Gauge: Height Above Sea Level	Depth of Rain. 1866	Days on which 1 or more fell.
			ft.	in.	feet.	inches.	
HERTS.							
Watford (Watford House)	R. Clutterbuck, Esq.	5	1	6	190	31·10	135
King's Langley	H. A. Groome, Esq.	5	1	2	...	32·90	166
Hoddesdon (Field's Weir)	N. Beardmore, Esq. C.E.	24	2	0	82	32·25	171
Hatfield (Parkgate)	Rev. R. P. Davies	8	1	3	360	29·29	186
Bayfordbury	W. C. Baker, Esq.	8	0	4	250	30·91	205
„	„ „ „	5	1	2	250	30·64	205
St. Albans (Gorhambury)	Mr. G. Bogue	6	2	9	...	34·53	176
Hemelhempstead (Nash Mills)	J. Evans, Esq., F.R.S.	12	3	0	250	30·21	200
Berkhampstead	W. Squire, Esq.	8	1	6	370	34·80	193
Kensworth [Dunstable]	T. Jones, Esq.	5	1	0	902	31·97	167
Ware (Much Hadham)	Rev. H. S. Mott	5	1	1	...	31·21	210
Stevenage (Woodfield)	J. Bailey Denton, Esq.	...	1	6	300	27·16	213
Buntingford (Aspenden)	Rev. A. P. Sanderson	5	1	1	...	30·63	151
Hitchin	W. Lucas, Esq.	9	1	6	240	27·00	192
Royston	H. Wortham, Esq.	8	0	6	266	26·48	...
BUCKINGHAMSHIRE.							
Eton	Rev. Herbert Snow	5	1	0	120 ?	29·30	182
Missenden Abbey	J. Begbie, Esq.	...	1	0	...	36·55	...
OXFORD.							
Henley-on-Thames	T. F. A. Byles, Esq.	5	4	0	90	29·33	...
Oxford (Radcliffe Observatory)	Rev. R. Main, F.R.S.	10	0	8	210	30·62	185
„ „	„ „ „	12	24	0	234	24·56	...
„ „ (Upper Heyford)	Rev. C. B. Mount	9	1	2	...	30·44	182
*Bicester (Stratton Audley Park)	G. Glen, Esq.	5	3	0	300 ?	29·70	...
Chipping Norton (Kingham)	Rev. J. W. Lockwood	5	5	0	442	31·13	...
Banbury (Sibford)	R. L. Routh, Esq.	5	1	0	250 ?	30·23	195
„ (High Street)	T. Beesley, Esq.	6	7	0	345	29·23	206
„	W. Johnson, Esq.	10	4	0	...	27·68	156
„ (Neithrop)	F. Francillon, Esq.	5	1	0	330	28·72	...
NORTHAMPTON.							
Yardley-Hastings	Rev. R. W. Prichard	5	1	2	260	27·19	...
Weedon Beck	Rev. J. S. Winter	8	1	6	...	27·11	...
Northampton	H. Terry, Jun., Esq.	5	5	0	...	28·06	...
*Northampton (Wellington Pl.)	Mr. G. Ellick	8	7	6	...	33 93?	...
„ (Althorp House)	Mr. W. F. Jakeman	8	3	4	310	28·59	160
Wellingborough	E. Sharman, Esq.	5	0	8	...	26·44	177
Kettering	John Wallis, Esq.	...	1	6	...	30·59	208
HUNTS.							
St. Neots, Tetworth Hall	Mrs. Kaye	5	0	6	150	25·56	195
„ (Waresley)	Rev. W. M. H. Elwyn	8	1	0	200	25·57	160
„	G. Bower, Esq.	5	1	6	35	24·81	...
Kimbolton (Hamerton)	Rev. A. F. Stopford	...	5	4	170	26·93	...
*Huntingdon (Wistow)	Rev. T. Woodruff	5	1	0	...	26·15	...
Conington Castle	J. M. Heathcote, Esq.	5	1	0	...	27·00	...
Standground Sluice, [Peterboro']	R. Lunn, Esq.	...	...		...	24·98	167

DIVISION III.—SOUTH MIDLAND COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground. ft.	in.	Height Above Sea Level feet.	Depth of Rain. 1866 inches.	Days on which '01 or more fell.
BEDFORD.							
Stotfold [Baldock]	W. Denne, Esq.	5	0	9	220	23·64	177
Ampthill	W. S. Slinn, Esq.	5	1	1	...	24·20	121
Biggleswade	C. T. Newberry, Esq.	5	5	6	...	22·75	118
Potton (Sutton Park)	Sir J. M. Burgoyne, Bt.	5	1	1	...	22·85	154
Cardington	Mr. J. B. McLaren	8	0	0	100	26·88	...
„ (Staff gauge)	„ „ „	12	3	6	104	25·53	184
„	„ „ „	8	36	0	136	21·37	...
CAMBRIDGE.							
Abington Pigotts [Royston]	G. Pigott, Esq.	8	0	6	130	25·45	178
Granchester Mill	J. Nutter, Esq.	5	4	0	45	22·94	186
Fulbourne	Rev. J. H. Usill	8	0	4	...	22·66	178
Cambridge (Beech House)	J. Nutter, Esq.	8	4	0	40	23·17	200
„ (Brook House)	G. Warren, Esq.	5	1	0	40	22·42	187
* „ (Observatory)	Professor Adams, F.R.S.	5	0	9	88	23·37	186
Ely (Stretham)	Mr. Edwin Stanley	9	4	9	...	21·78	147
Wisbech (North Brink)	A. Peckover, Esq.	8	0	8	11	27·11	175
„ (Observatory)	S. H. Miller, Esq.	8	0	6	10	26·39	172
„ „ „	„ „ „	8	8	0	18	25·33	...
„ „ „	„ „ „	20×10	35	0	45	20·75	...
Wisbech, St Mary's	Herbert J. Little, Esq.	8	0	6	10	24·85	183

DIVISION IV.—EASTERN COUNTIES.

ESSEX.							
Shoeburyness	Major Curtis	5	4	0	12	23·81	120
Rochford (Clement's Hall)	A. Holt White, Esq.	8	4	0	25 ?	26·03	164
Leyton	C. G. Talmage, Esq.	8	1	0	87	28·63	138
*Billericay	F. Carter, Esq.	5	1	0	...	28·64	209
Waltham Abbey	Captain Smith, R.A.	...	...		...	28·45	...
Epping	H. Doubleday, Esq.	5	6	0	360	29·88	203
Harlow (Sheering)	Rev. Edward Hill	5	1	0	100 ?	27·06	187
„ (Moor Hall)	Mr. Hurtley	...	...		...	30·57	...
Witham (Dorward's Hall)	H. Dixon, Esq.	6	1	6	20 ?	23·68	...
Dunmow (High Roding)	Rev. E. Maxwell	5	0	8	250 ?	28·03	204
„	H. E. Cockayne, Esq.	12	0	6	234	27·97	200
*Colchester (Birch Hall)	Mr. W. Ingle	...	1	0	...	29·33	176
„ (Broom Hill House)	Captain Walker	5	1	3	87	? 36·39	169
Braintree (Bocking)	S. Tabor, Esq.	12	3	6	200	28·33	133
Halstead (Earl's Colne)	Harris Hills, Esq.	8	1	0	180	24·99	169
„ (Hedingham Castle)	Lewis A. Majendie, Esq.	8	0	6	...	27·20	195
Saffron Waldon (Wimbish)	D. K. Emson, Esq.	8	0	6	...	29·76	151
„ „ (Ashdon)	Rev. J. T. Walker	5	1	0	300	26·72	...
Heydon [Royston]	Mr. J. Bryan	5	1	1	440	29·01	220

DIVISION IV.—EASTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which 01 or more fell.
			ft. in.	feet.	inches.	
SUFFOLK.						
Sudbury	J. Alexander, Esq.	5	3 10	...	28·25	176
Ipswich (St. Peter's)	M. Oliver, Esq.	5	1 2	7	30·70	155
Hadleigh (Aldham)	J. F. Lloyd, Esq.	5	2 6	...	30·12	...
Grundisburgh	P. Harris, Esq.	5	3 8	...	29·00	187
Saxmundham (Carlton Hall)	Mr. Clark	8	5 0	...	29·93	...
† Bury St. Edmunds (Abbeygate St.)	E. Skepper, Esq.	6	45 0	...	29·42	147
† „ „ (Beech Hill)	H. Turner, Esq.	6	0 9	...	34·62	...
† „ „ (Westley)	R. Burrell, Esq.	5	1 6	...	26·67	..
† „ „ (Barton Hall)	Mr. W. Allan	5	1 0	...	27·31	181
† „ „ (Culford)	Mr. P. Grieve	5	1 2	...	28·73	154
Ixworth	Rev, W. Steggall	5	1 7	...	29·01	180
„ (Barningham)	J. Fison, Esq.	8	1 2	...	26·16	...
Mendlesham (Thwaite)	Mr. Whistlecraft	...	3 6	150	32·31	...
Eye (Yaxley)	Rev. W. H. Sewell	8	1 0	199	28·31	185
Lowestoft (Gisleham)	Rev. H. Jodrell	...	1 2	...	28·39	...
„ (Carlton Colville)	G. Edwards, Esq.	8	0 9	6	26 40	...
„ (Somerleyton)	Sir Francis Crossley	8	3 0	...	27·57	150
„ (Hopton Hall)	C. Cory, Esq.	8	0 2	70	27·60	...
NORFOLK.						
Diss	Dr. Stewart	8	0 6	110	28·32	160
Beccles (Geldeston)	E. T. Dowson, Esq.	4	1 4	34	26·86	184
„ (Saxlingham)	Rev. S. W. King	5	1 6	...	28·22	...
*Downham Market (Bexwell)	Rev. E. J. Howman	5	0 11	...	25·46	124
„ „ (Outwell Sluice)	R. Lunn, Esq.	...	4 0	16	24·61	105
Norwich (Surrey Street)	W. Brooke, Esq.	...	0 3	50	27·63	...
„	C. Evans, Esq.	5	2 3	120	27·55	162
„ (Thorpe)	W. Birkbeck, Esq.	5	1 0	100	25·43	154
Acle	Rev. R. W. Kerrison	8	0 9	40	24·96	153
Yarmouth (Runham)	Rev. E. Gillett	4	3 1	40	26·94	...
Norwich (Cossey)	H. Culley, Esq.	5	1 0	...	26·87	186
„ (Honingham)	Lady Bayning	5	0 6	110 ?	24·34	177
Dereham (Mattishall)	Rev. J. M. Du Port	8	1 2	165	27·25	209
*Swaffham	C. J. Drury, Esq.	5	1 10	239	29·02	197
West Walton	J. Cross, Esq	8	0 10	...	24·82	145
*Reepham	T. Alderton, Esq.	5	1 0	...	26·95	186
Lynn (Hillington)	Rev. H. Ffolkes	5	4 6	...	25·75	190
Fakenham (Egmere)	R. Overman, Esq.	4	4 8	150	29·71	185
Burnham	H. E. Blyth, Esq.	3	4 6	102	29·12	187
„ (Westgate)	W. H. Spencer, Esq.	3	6 0	...	25·04	...
Holkham	John Davidson, Esq.	8	0 0	39	25·40	154
„ „ „	„ „ „	12	4 0	43	24·28	154
Wells	H. R. Rump, Esq.	5	1 0	16	25·01	217
Hunstanton	Mr. J. Rippingale	11	3 8	60	21·93	...

DIVISION V.—SOUTH-WESTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell
			ft. in.	feet.	inches.	
WILTS.						
Salisbury (Landford)	J. R. Wigram, Esq.	...	2 0	240?	33·23	206
„ (Woodford)	H. Hinxman, Esq.	5	1 2	150	32·57	...
„ (Baverstock)	Archdeacon Hony	12	3 0	200	34·56	...
Heytesbury (Chiltern)	R. Hayward, jun., Esq.	...	4 2	380	34·77	203
Salisbury Plain (Orcheston)	Rev. J. Wardale	6	2 0	...	36·97	...
Devizes (Lavington)	F. Stratton, Esq.	11	3 0	250	37·33	...
Trowbridge (Holbrook Farm)	J. A. Fryer, Esq.	...	1 6	...	31·39	...
„ (Sunny Side)	W. J. Mann, Esq.	5	1 1	...	34·96	232
Marlborough	W. C. Merriman, Esq.	15	4 0	500	35·85	...
„ College	Rev. T. A. Preston	5	0 0	456	38·05	209
„ (Mildenhall)	Rev. C. Soames	5	1 0	500?	35·94	213
†Calne (Castle House)	Lieut.-Col. Ward	5	0 11	251	33·90	181
„ „ „	„ „	5	32 0	282	31·86	...
Chippenham (Tytherton)	Major Gritton	5	1 2	150	31·92	210
Swindon (Draycot Foliat)	T. Arkell, Jun., Esq.	5	...	...	36·22	205
„ (Penhill)	T. Arkell, Esq.	5	0 10	...	32·09	197
DORSET.						
Weymouth	*Preston Guardian*	...	...	...	32·45	196
Wareham (Encombe)	Earl Eldon	...	0 6	150	34·39	...
Upwey	J. Miller, Esq.	5	1 0	70	35·32	210
*Dorchester	J. Jowett, Esq.	5	0 6	250	40·37	206
Bridport	A. Stephens, Esq.	8	0 8	85	34·77	190
Cerne Abbas (Melbury)	Mr. G. C. Elliot	12	2 9	...	45·32	...
*Wimborne Minster (Chalbury)	Rev. G. H. Billington.	5	2 0	338	35·19	198
Blandford	W. Shipp, Esq.	5	1 0	...	37·36	179
Shaftesbury	T. Ackland, Esq.	5	1 3	617	43·00	208
Gillingham	T. Thompson, Esq.	5	1 5	110	35·23	191
DEVON.						
Kingsbridge (Burton)	W. Balkwill, Esq.	5	3 0	250	41·58	...
Plymouth (Old Town Street)	A. P. Balkwill, Esq.	5	40 0	150?	45·38	...
† „ (Saltram Gardens)	Mr. J. Snow	5	0 3	96	52·95	...
† „ (Ham)	Rev. C. Trelawny	6	3 0	94	47·61	162
†Ivybridge (Torrhill)	J. Widdicombe, Esq.	5	0 4	270	60·68	206
†Plympton St. Mary (Ridgeway)	Miss B. T. Phillipps	5	0 6	116	54·33	227
† „ (Goodamoor)	H. H. Treby, Esq.	5	0 2	580	65·46	208
†Dartmoor (Lee Moor)	W. Martin, Esq.	5	0 2	900	76·05	...
*Torquay (Lamorna)	W. Pengelly, Esq.	5	0 9	205	40·69	218
†Newton Bushel (Highwick)	Dr. Barham	10	1 6	250?	41·40	197
†Dartmoor (Prison Reservoir)	Mr. H. Watts	5	0 2	1400	94·66	264
† „ (N. Hessary Tor.)	„ „	5	0 3	1596	94·18	264
†Teignmouth (Landscore)	Mrs. Clark	5	0 3	200	44·06	152
„ (Bishopsteignton)	Rev. S. M. Scroggs	5	6 6	100	38·17	209
†Tavistock (Public Library)	Mr. W. Merrifield	8	20 0	273	50·04	170
* „ (Mount Tavy)	H. Clark, Esq.	5	0 6	...	55·07	...
†Milton Abbot (Endsleigh)	Mr. Cornelius	5	0 6	...	54·06	...
†Dawlish (Charlton Villa)	P. J. Margary, Esq.	5	0 8	62	39·18	...
†Bovey Tracey	J. Divett, Esq.	6	0 6	94	46·87	202
Exmouth (Budleigh Salterton)	R. Walker, Esq.	5	4 0	16	37·30	190

DIVISION V.—SOUTH-WESTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches.	
DEVON—(*con.*)						
Hexworthy [Launceston]	H. M. Harvey, Esq.	5	1 2	...	52·37	...
Chagford	R. L. Berry, Esq.	5	0 5	660	61·15	...
Sidmouth (Black Moor)	W. Strahan, Esq.	5	1 0	25	38·71	203
„ (Belgrave)	Dr. Mackenzie	5	0 6	26	37·63	203
* „ (Salcombe Hill House)	E. T. Sanders, Esq.	5	0 6	74	38·78	204
„	S. Chick	10	25 0	43	31·67	183
Topsham (Clyst St. George)	Rev. H. T. Ellacombe	5	1 3	...	34·68	...
† Exeter (High Street)	W. H. Ellis, Esq.	10	44 3	180	36·48	190
* „ „	„ „ „	5	47 11	184	36·78	197
† „ (Devon & Exeter Institution)	Mr. E. Parfitt	6	13 7	155	36·94	161
† „ (Hoopern House)	G. Kennaway, Esq.	5	0 7	293	35·62	...
„ (Brampford Speke)	W. H. Gamlen, Esq.	5	0 3	140	38·59	210
Cullompton (Clysthydon)	Rev. J. Huyshe	3	1 6	200	37·70	...
* „ (Strath Culm House)	C. R. Collins, Esq.	8	0 6	159	39·99	144
† Honiton (Broadhembury)	Rev. W. Heberden	5	1 6	400	38·36	219
Tiverton (Cove)	W. N. Row, Esq.	11	0 10	450	49·56	...
„ (Springfield)	H. Stokes, Esq.	6	0 10	400	46·58	224
Great Torrington	Rev. S. Buckland	12	3 10	450 ?	43·68	216
S. Molton (Meshaw)	Rev. W. H. Karslake	8	0 6	472	50·11	243
* Bideford (Buckish)	Rev. J. H. Kirwan	5	1 1	550	55·70	250
* „ (Northam)	Rev. I. H. Gosset	5	1 0	156	41·25	220
S. Molton (Castle Hill)	Mr. A. Saul	4	3 0	200	54 62	227
Barnstaple	T. Mackrell, Esq.	8	0 6	31	43·02	214
* „ (Bratton Fleming)	Rev. H. S. Pinder	5	1 0	600 ?	62·06	253
CORNWALL.						
Land's End (St. Sennen)	Rev. G. L. Woolcombe	5	0 10	390	40·42	226
Helstone	M. P. Moyle, Esq.	15	5 0	115	42·95	206
Penzance	W. H. Richards, Esq.	12	2 6	94	48·50	...
Redruth (Tehidy Park)	Mr. H. Beddard	6	0 6	100	50·32	...
Truro (Royal Institution)	Dr. Barham	10	40 0	56	50·77	218
„ (Penarth)	Nicholas Whitley, Esq.	...	1 0	190	49·43	216
St. Agnes	Dr. Barham	11	1 8	300	47·45	191
* St. Austell (Trevarna)	W. Coode, Esq.	5	0 5	300	53·77	235
St. Germains (Port Eliot)	Mr. Lynch	12	3 8	...	49·94	...
Newquay	Mr. W. H. Tregidgo	...	1 9	90	43·90	187
Liskeard	S. W. Jenkin, Esq.	8	2 6	400	57·25	231
Callington (Pentillie Castle)	Mr. C. Edwards	5	1 5	...	55·50	177
„ (Hingston Down)	Captain Richards	11	1 0	850	67·61	219
„ (Harewood)	H. R. Trelawny, Esq.	5	2 0	120	51·64	...
Bodmin (Fore Street)	A. Hambly, Esq.	...	2 6	340	55·25	226
„	Capt. Liddell, R.N.	8	2 6	325	55·17	228
„ (Warleggan)	Rev. D. Clements	10	3 0	700	58·74	209
„ (Pencarrow)	Mr. H. Jones	8	3 0	230	51·24	227
Wadebridge (Treharrock House)	F. B. Hambly, Esq.	5	3 6	303	46·45	232
Port Isaac (Roscarrock)	Mark Guy, Esq.	8	3 0	210	45·26	221
Launceston (Altarnum)	C. U. Tripp, Esq.	5	0 7	570	72·54	258
Camelford (Lanteglos)	Rev. J. I. Wilkinson	...	3 0	460	54·17	238

DIVISION V.—SOUTH-WESTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches.	
SOMERSET.						
Chard (Tudbeer)	Mr. A. Hull	10	4 0	...	32·51	186
Ilminster (South Petherton)	W. Blake, Esq.	8	1 8	200 ?	29·94	207
Ilebrewers (Walrond Park)	J. Ostler, Jun., Esq.	...	1 0	...	29·53	...
Ilchester	J. W. Bourne, Esq.	8	1 6	30 ?	32·05	174
*Wellington (Foxdown)	W. Elworthy, Esq.	5	1 0	...	40·31	...
*Taunton (Fullands School)	W. Reed, Esq.	5	1 4	...	31·96	180
Langport (Long Sutton)	R. Palmer, Esq.	5	0 10	50	33·00	190
*Wiveliscombe	B. Boucher, Esq.	5	1 2	...	37·17	212
Glastonbury (Street)	J. Clark, Jun., Esq.	6	1 6	100	35·49	...
Holford	Rev. J. C. Barnwell	5	1 0	385	35·09	...
Wells (Dinder)	Rev. T. J. Bumpsted	8	4 0	140 ?	42·33	202
Burnham (The Colony)	J. P. Estlin, Esq	5	1 0	30	30·91	202
Frome (Mells Rectory)	Rev. J. H. Horner.	5	1 0	450 ?	47·57	223
E. Harptree (Sherborne Reservoir)	Bristol Water Works	5	1 0	338	52·09	...
*Weston-super-Mare	Mr. J. Boycott	6	0 3	8	33·20	203
Chew Magna [Bristol]	Bristol Water Works...	5	1 0	160	40·87	...
Bath (Paragon)	C. S. Barter, Esq.	5	1 0	113	36·75	157
„ (Literary Institute)	C. P. Russell, Esq.	5	8 0	54	36·60	199
„ (Weston)	.....	5	10 0	190	36·48	209
„ (Batheaston)	A. Mitchell, Esq.	12	2 0	226	40·35	191
„ (Swanswick)	Rev. F. Lockey	10	32 0	...	28·52	201
Barrow Gurney Reservoir	Bristol Water Works	5	1 0	320	44·63	...

DIVISION VI.—WEST MIDLAND COUNTIES.

GLOUCESTER.						
Bristol (Small St.)	Bristol Water Works	5	25 0	40	37·70	...
„ (Montpelier)	F. P. Bisson, Esq.	5	2 0	100	39·73	205
Clifton	Dr. G. F. Burder	8	0 6	192	40·11	198
Berkeley	E. W. Osborne, Esq.	5	1 6	60	36·91	213
„ (Lydney)	W. H. Bathurst, Esq.	8	1 0	35	41·89	...
Fairford	J. Powell, Esq.	5	0 8	...	34·36	196
Cirencester	T. C. Brown, Esq.	10	1 2	446	37·97	...
Stonehouse	W. Bishop, Esq.	5	1 0	...	33·66	...
Frampton-on-Severn (Saul Lodge)	W. B. Clegram, Esq. C.E.	5	3 6	42	29·46	192
Gloucester (Witcomb Court)	A. Bubb, Esq.	8	2 0	225	33·66	...
„ (Quedgeley)	J. C. Hayward, Esq.	5	0 10	100 ?	31·51	...
„ (Park Ho.)	A. Price, Esq.	5	3 6	50	27·12	...
Cheltenham (Keynsham Bank)	H. D. Humphries, Esq.	8	6 6	201	30·59	163
Newent (Boyce Court)	General Drummond	8	1 4	...	26·75	171
HEREFORD.						
Ross (Rocklands)	J. M. Herbert, Esq.	8	1 10	100 ?	37·17	191
Ross	H. Southall, Esq.	5	1 4	200 ?	29·17	201

DIVISION VI.—WEST MIDLAND COUNTIES—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell
			ft. in.	feet.	inches.	
HEREFORD—(*con.*)						
Hereford (Broomy Hill)	T. Curley, Esq., C.E	5	0 11	158	35·33	195
„ (Blue Coat School)	W. Cooke, Esq.	8	5 6	163	25·90	136
„ (Stretton)	Rev. H. C. Key	5	1 0	170	27·57	166
Leominster (West Lodge)	E. P. Southall, Esq.	5	1 0	229	31·51	211
„ (Leysters)	Rev. T. S. Hewitt	5	0 6	700 ?	29·11	...
SHROPSHIRE.						
Burford [Tenbury]	Lord Northwick	...	0 10	180 ?	27·68	...
Ludlow (Knowbury)	Rev. J. B. James	5	1 0	1000 ?	31·65	...
„ (Mill Street)	W. Marston, Esq.	...	1 1	350	32·51	207
Church Stretton (Woolstaston)	Rev. D. Carr	5	1 0	790	37·74	236
Shiffnal (Evelith Manor)	Miss Elwell	5	4 8	430	30·04	...
„ (Haughton Hall)	Rev. J. Brooke	4	3 6	450 ?	29·93	188
Shrewsbury (Highfield)	T. Howells, Esq.	5	5 6	200	28·20	...
„	Marshall & Co.	10	4 4	192	24·35	...
„ (Fitz Manor)	R. Middleton, Esq.	5	2 6	260 ?	24·58	...
„ (Church Aston)	Rev. W. Nickisson	5	2 0	260	28·91	198
Ellesmere (Cockshutt)	Mr. R. King	5	0 9	...	29·61	214
Oswestry (Hengoed)	Rev. A. R. Lloyd	5	6 0	471	40·53	...
Market Drayton (Nort'n-in-Hales)	Rev. F. Silver	8	0 6	...	31·24	190
* Whitchurch	Rev. J. E. Yeadon	5	0 10	...	30·04	185
STAFFORD.						
Wolverhampton (Oaklands)	H. Ward, Esq.	5	0 10	520	30·97	175
„ (Waterloo Road)	C. G. DeLessert, Esq.	5	1 1	500	28·86	204
„ (Wadham's Hill)	Rev. E. W. Winter	...	5 0	510	27·38	...
„ (St. John's Sq.)	J. Thrustans, Esq.	8	5 6	513	31·05	199
„ (Pattingham)	Rev. B. S. Malden	5	1 0	450 ?	28·19	183
„ (Wrottesley)	Lord Wrottesley, F.R.S	3	0 4	530	27·79	193
„	„ „ „	8	0 8	530	26·70	183
„ „	„ „ „	15×13	22 0	553	22·31	175
Weston-under-Lyziard [Shiffnal]	Rev. J. Bridgeman	9×16	0 10	...	27·41	221
Burton-on-Trent	J. Matthews, Esq.	5	6 0	152	25·87	184
Stoke (Barlaston)	W. Scott, Esq.	5	0 6	530	36·13	195
Oakmoor (Ellaston)	Rev Sir C. R Lighton, Bt.	6	3 0	400	41·99	207
WORCESTER.						
Northwick Park	Lord Northwick	8	1 6	...	34·59	...
Evesham	R. Burlingham, Esq.	8	4 6	98	33·09	210
Great Malvern	Dr. Williams	6	4 0	450	28·82	179
West Malvern	A. H. Hartland, Esq.	8	1 6	900	29·38	197
Worcester (Lark Hill)	W. Burgess, Esq.	5	1 0	157	29·45	183
Tenbury (Orleton)	T. H. Davis, Esq.	5	0 9	200	34·62	231
Bromsgrove	G. Dipple, Esq.	11	4 4	273	28·76	210
Moseley [Birmingham]	T. L. Plant, Esq.	...	4 0	481	34·83	219
Stourbridge (Dursley)	J. Lourn, Esq.	5	0 10	...	27·46	189
WARWICK.						
Henley-in-Arden	G. R. Dartnell, Esq.	5	2 0	450 ?	29·34	178
Leamington	S. U. Jones, Esq.	5	0 8	195	27·55	188
Rugby	F. Fuller, Esq.	12	2 4	384	29·90	174
Coventry (Radford)	A. F. Atkins, Esq.	8	1 0	305	27·54	171

DIVISION VI.—WEST MIDLAND COUNTIES—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches.	
WARWICK—(*con.*)						
Pailton House [Lutterworth] ...	Capt. Constable Curtis	7	1 0	...	28·50	176
† Edgbaston (Calthorpe Street) ...	W. Southall, Esq.	8	1 6	510	31·31	209
†Birmingham (Bloomsbury Street)	D. Smith, Esq.	8	0 10	340	32·20	...

DIVISION VII.—NORTH MIDLAND COUNTIES.

LEICESTER.						
Knaptoft Hall [Rugby]	T. Willson, Esq.	5	1 6	...	32·85	225
† Market Harborough (Fleckney)	J. B. Putt, Esq.	5	0 8	...	32·69	208
Hinckley (Stretton Fields)	T. J. Scott	5	0 6	...	30·65	206
† Wigston	T. Burgess, Esq.	8	0 6	220	29·83	188
Loddington Hall	Mrs. Ewart	5	1 0	...	30·16	164
† Leicester	H. Billson, Esq.	8	0 6	230	29·92	188
Appleby	Rev. F. B. Falkener..	...	0 9	333	30·40	...
† Owston [Oakham]	Miss Gilford	5	1 0	600 ?	32·81	215
Melton Mowbray (Dalby Hall)...	Mr. G. Jones	8	2 6	408 ?	29·62	211
Rearsby	Mr. G. Kilby	5	1 6	220	30·55	201
Loughborough (Emmanuel Rec.)	Rev. R. J. Bunch	8	0 5	210 ?	33·52	185
„ (Belton)	Rev. R. Dalby	5	4 0	250	32·00	212
Waltham Rectory	Rev. G. E. Gillett	8	0 8	540	27·92	194
† Belvoir Castle	W. Ingram, Esq.	8	1 0	237	29·39	203
RUTLAND.						
Tickencote	Rev. C. L. Wingfield..	8	2 0	...	25 98	133
Ryhall	Rev. C. Potchett	5	1 4	...	26·89	174
Greetham	Rev. C. A. Holmes	5	0 10	...	26·71	165
LINCOLN.						
Stamford	Dr. Newman	...	1 0	...	28·37	...
„ (Greatford Hall)	Captain Peacock	5	0 9	...	26·71	...
* Bourne (Wytham-on-the-Hill) ...	A. C. Johnson, Esq. ...	5	1 3	...	24·94	167
† Grantham	J. W. Jeans, Esq.	8	0 6	179	22·77	187
Sleaford (Heydour)	Rev. G. F. Deedes	5	3 0	...	26·72	...
Boston	Dr. Mercer Adam	5	1 0	20	25·55	205
Stubton [Newark]	G. Nevile, Esq.	5	5 0	...	26·78	209
Spilsby (Welton-le-Marsh)	Rev. A. Wright	5	3 6	80 ?	27·15	186
Lincoln (Branston)	A.S.LeslieMelville,Esq	5	0 9	...	27·48	197
„	M. S. & L. R. Co ...	9	3 6	26	22·62	...
Gate Burton	„ „ „	9	3 6	96	25·47	...
Louth	T. W. Wallis, Esq. ...	3	5 0	80	35·23?	216
Market Rasen	M. S. & L. R. Co.	9	3 6	100	32·76	...
Gainsborough	„ „ „	9	3 6	76	22·24	...
„ (Belmont Ho) ...	T. Dyson, Esq.	12	8 0	65	25·97	164
Stockwith	M. S. & L. R. Co.	9	3 6	21	24·41	...
Brigg	„ „ „	9	3 6	16	27·89	...
Grimsby	„ „ „	9	15 0	42	26·22	...
Barnetby	„ „ „	9	3 6	51	23·60	...
Ulceby (Killingholme)	Rev. J. Byron	5	1 4	...	29·26	209
Brigg (Appleby)	Rev. J. E. Cross	5	0 9	60	26·36	...
New Holland	M. S. & L. R. Co.	9	3 6	18	24·84	...

DIVISION VII.—NORTH MIDLAND COUNTIES.—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground. ft.	in.	Height Above Sea Level feet.	Depth of Rain. 1866 inches.	Days on which ·01 or more fell.
NOTTS.							
Beeston Meadow	Mr. W. Barker	8	1	1	100	28·12	...
Nottingham Park	Mr. W. Chapman	5	1	3	80	29·38	...
„ „ (Highfield Ho.)	E. J. Lowe, Esq.	8	0	0	162	30·19	212
„ „ „ „	„ „ „	8	25	0	184	28·36	...
Southwell (Oxton)	H. Sherbrooke, Esq.	2	2	0	...	27·46	...
„	W. W. P. Clay, Esq.	6	1	6	200	23·83	...
Welbeck Abbey	Mr. W. Tillery	5	3	0	...	26·68	168
Worksop	M. S. & L. R. Co.‡	9	3	6	127	27·13	...
Retford	„ „ „	9	3	6	52	25·05	...
DERBY.							
Sawley	Mr. J. Windle	5	0	9	100	29·59	197
Sudbury	A. Dick, Esq.	5	1	9	174	35·31	183
Doveridge [Uttoxeter]	Hon. & Rev. O. Forester	6	4	0	270	33·67	209
Derby (Mickleover)	R. Ryley, Esq.	5	17	6	300	24·47	196
„ (Spondon)	T. C. Cade, Esq.	5	1	6	200 ?	34·60	...
„	J. Davis, Esq.	5	5	0	180	34·47	214
„ (West Hallam)	Rev. C. J. Newdigate	5	2	0	354	33·09	210
Belper	J. G. Jackson, Esq.	5	0	8	...	35·09	196
Chatsworth	J. Taplin, Esq.	...	...		...	34·78	201
Chesterfield	M. S. & L. R. Co.	...	3	6	248	31·37	118
Brampton (Fairfield)	J. M. Hewitt, Esq.	5	6	8	510	35·40	222
„ (St. Thomas')	Rev. J. M. Mello	5	6	6	326	36·43	209
Buxton	J. Dawn, Esq.	8	5	0	1005	76·11	208
Stony Middleton	Rev. U. Smith	5	4	0	640?	40·97	187
Norwood	M. S. & L. R. Co.	9	3	6	238	28·34	...
Comb's Moss	„ „ „	9	3	6	1669	63·56	...
„ Reservoir	„ „ „	9	3	6	710	61·37	...
† Chapel-en-le-Frith	„ „ „	9	3	6	965	52·29	206
Woodhead	„ „ „	9	3	6	878	66·39	203

DIVISION VIII.—NORTH-WESTERN COUNTIES.

CHESHIRE.							
Wrenbury	J. B. Denton, Esq.	9	1	6	...	29·03	...
Bosley Minns	‡M. S. & L. R. Co.	9	3	6	1210	31·55	126
Bosley Reservoir	„ „ „	9	3	6	590	34·50	172
Macclesfield	„ „ „	9	3	6	539	40·70	174
„ (Park Green)	W. Jeffrey, Esq.	5	2	9	500	43·13	190
„ (Town Yard)	H. S. Aspinwall, Esq.	8	2	6	425	40·28	185
Chelford	Mr. C. Nichols	...	...		...	36·87	...
Northwich	E. L. Williams, Esq.	8	1	6	42	34·44	208
Frodsham (Kingsley)	Rev. R. Tyas	...	0	8	193	34·19	212
Runcorn (Weston Point)	E. L. Williams, Esq.	5	1	0	15	33·77	231
Bollington (Spond's Hill)	M. S. & L. R. Co.	9	3	6	1279	42·51	...
Whaley	„ „ „	9	3	6	602	55·46	222
Handforth (Quarry Bank)	J. Henshall, Esq.	8	0	8	295	38·53	...

Kept for the Canals Department of the Manchester, Sheffield, and Lincolnshire Railway Company.
Returns supplied by R. D. Heathcote, Esq.

DIVISION VIII.—NORTH-WESTERN COUNTIES—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which .01 or more fell.
			ft. in.	feet.	inches.	
CHESHIRE—(*con.*)						
Marple Aqueduct	M. S. & L. R. Co.	...	3 6	321	38·49	212
„ Top Lock	„ „ „	...	3 6	543	42·97	210
Stockport	J. Sidebottom, Jun. Esq.	...	...	...	31·76	195
Mottram Hill End	M. S. & L. R. Co.	...	3 6	680	52·70	229
„ Matley's Field	„ „ „	...	3 6	399	47·15	226
Newton	„ „ „	...	3 6	396	39·65	201
LANCASHIRE.						
Warrington (Penketh)	L. W. Reynolds, Esq.	8	1 0	39	36·32	217
West Derby (Sandfield Park)	Mr. W. Biggs	8	1 2	147	34·90	...
Liverpool (Observatory)	J. Hartnup, Esq.	22	30 0	52	28·38	185
Prescot (Knowsley)	J. Freeman, Esq.	...	10 0	190	38·95	...
†Manchester (Old Trafford)	G. V. Vernon, Esq.	8	2 7	106	43·17	196
† „ „ „	J. Curtis, Esq.	8	2 3	111	43·43	226
„ (Eccles)	T. Mackereth, Esq.	10	3 0	145	43·08	232
† „ (Dale Street)	M. S. & L. R. Co.	9	40 0	194	43·64	208
Fairfield	„ „ „	...	6 0	312	49·89	197
Manchester Water Works. Gorton Reservoir	J. F. Bateman, Esq. F.R.S.	...	...	263	41·64	...
Manchester Water Works. Denton „	„ „ „	...	...	324	40·47	...
Manchester Water Works. Godley „	„ „ „	...	...	500	42·94	...
Manchester Water Works. Arnfield „	„ „ „	...	..	575	47·50	...
Manchester Water Works. Rhodes Wood „	„ „ „	...	...	520	58·45	...
Manchester Water Works. Woodhead „	„ „ „	...	...	680	64·58	...
Manchester Water Works. Torrside „	„ „ „	...	...	600	55·45	...
Stoneclough (Outwood)	W. Horrocks, Esq.	12	1 0	295	48·30	210
Oldham (Gas Works)	J. Taylor, Esq.	9	6 0	600	47·68	225
„ (Waterhouses)	M. S. & L. R. Co.	...	3 6	345	43·65	178
„ (Strines Dale)	J. Taylor, Esq.	10	6 0	800	46·26	237
„ (Brushes Clough)	„ „ „	10	6 0	950	57·84	245
„ (Picthorne)	„ „ „	10	6 0	800	54·59	233
*Oldham (Royton)	J. Heap, Esq.	5	1 0	484	56·92	218
Radcliffe (Mount Sion)	H. Eaton, Esq.	10	1 3	250	51·20	...
Bolton-le-Moors (The Folds)	H. H. Watson, Esq.	10	3 6	286	59·20	...
„ (Vale Bank)	J. Watkins, Esq.	10	3 0	300	60·60	195
Wigan (Water Works Reservoir)	J. L. Hunter, Esq., C.E.	8	1 3	225	43·61	213
„ (Standish)	„ „ „	6	0 6	300	48·16	185
Bolton (Heaton)	H. Baylis, Esq.	10	0 0	500	55·30	175
„ (Belmont)	„ „ „	10	0 0	800	68·10	196
Rochdale (Nagden Dane)	C. E. Cawley, Esq. C.E.	5	1 6	900	73·24	...
Ormskirk (Rufford)	J. Porter, Esq.	7	0 8	38	42·58	209
Bacup	G. C. Harrison, Esq.	8	0 5	900	61·00	212
Blackburn (W. Works Office)	J. F. Bateman, Esq. F.R.S.	...	...	400	48·98	...
„ (Pickup Reservoir)	„ „ „	...	...	720	54·10	...
„ (Guide Reservoir)	„ „ „	...	...	650	53·60	...
„ (Audley Place)	J. Shackleton, Esq.	5	0 6	450	58·57	216
Burnley W. Works (Swindon)	*Preston Guardian*	...	...	...	58·24	...
Preston (Howick House)	T. Norris, Esq.	12	0 6	72	45·65	...

DIVISION VIII.—NORTH WESTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground. ft.	in.	Height Above Sea Level feet.	Depth of Rain. 1866 inches.	Days on which 01 or more fell.
LANCASHIRE—(*con.*)							
Preston (Fishwick)	T. Oddie, Esq.	7	24	0	154	48·76	...
„ (House of Correction)	Mr. J. Hesketh	7	1	1	140	50·05	...
„ „ „	„ „ „	7	53	6	187	41·07	...
„ (Holme Slack)	J. Newton, Esq., C E.	8	1	2	143	47·53	...
Blackpool (South Shore)	G. Sharples, Esq.	10	1	8	29	39·91	...
Stonyhurst College	Rev. W. Sidgreaves	11	1	3	381	64·95	219
Preston Water Works. Alston	J. Armytage, Esq., C.E.	8	1	2	320	53·65	...
Preston Water Works. Jeffrey Hill	„ „	8	1	2	900	50·36	...
Preston Water Works. Knowl Green	„ „	8	1	2	400	52·49	...
Preston Water Works. Lond-scales	„ „	8	1	2	400	52·56	...
Preston Water Works. Spade Mill	„ „	8	1	2	400	52·16	...
Clitheroe (Downham Hall)	R. Assheton, Esq.	10	1	6	464	58·26	...
Garstang (Vale House)	J. Jackson, junr., Esq.	6	4	3	455	50·89	219
Lancaster (South Road)	W. Roper, Esq.	12	1	0	114	49·50	...
† „ (Caton)	Rev. A. Christopherson	5	1	9	120	52·71	187
Hest Bank	T. Ransome, Esq.	12	2	2	58	46·66	...
Lancaster (Hornby Castle)	C. H. Lethbridge, Esq.	12	3	2	103	56·95	155
„ (Storr's Hall)	F. F. Pearson, Esq.	...	...		...	55·79	...
Yealand Conyers [Milnthorpe]	Rev. T. Birkett	5	3	0	220	49·11	200
† „ (Holker)	Mr. Wilson	8	4	8	155	51·50	224
„ (Grange)	A. Beardsley, Esq.	8	3	0	25	59·66	213
*Ulverston	J. H. Matthews, Esq.	5	5	6	98	58·86	221
† Monk Coniston (Park)	H. C. Marshall, Esq.	10	4	11	150	96·60	...
† „ „ (Lanchenil)	R. J. Bywater, Esq.	5	1	0	287	93·43	220

DIVISION IX.—YORKSHIRE.

W. RIDING.							
Sheffield (Station)	M. S. & L. R. Co.	...	3	6	188	33·12	197
„ (Edge)	„ „ „	...	3	6	336	38·16	231
„ (Broomhall Park)	D. Doncaster, Jun. Esq.	10	2	0	337	36·16	242
„ (Crookesmoorside)	„ „ „	10	0	6	600	38·71	...
„ (High Hazles)	Mrs. Hounsfield	...	...		...	30·50	148
Redmires	J. Gunson, Esq.	...	4	0	1100	47·73	...
Tickhill	Dr. Dixon	...	2	0	61	30·42	194
† Rotherham (Moorgate Grove)	R. Chrimes, Esq.	5	1	0	265	30·31	182
Wath-upon-Dearne	W. M Burman, Esq.	8	6	6	186	26·97	153
Doncaster (Magdalens)	Mr. J. Howorth	5	5	9	46	32·58	152
Dunford Bridge	M. S. & L. R. Co.	...	3	6	954	67·15	232
„ (Reservoir)	Mr. G. Whitfield	12	2	0	1100	65·29	...
Carlcotes	M. S. & L. R. Co.	...	3	6	1075	84·54	220
Penistone	„ „ „	...	3	6	717	41·85	188
Barnsley	Dr. Sadler	5	1	3	350	32·79	230
Holmfirth (HolmeStyesReservoir)	J. F. Bateman, Esq. FRS	...	...		850	55·30	...
„ (Boshaw Whams Reservoir)	„ „ „	...	...		950	53·20	...
„ (Bilberry Reservoir)	„ „ „	...	...		800	69·20	...

DIVISION IX.—YORKSHIRE—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground. ft.	in.	Height Above Sea Level feet.	Depth of Rain. 1866 inches.	Days on which ·01 or more fell.
W. RIDING—(*con.*)							
Saddleworth (Friesland)	G. Venables, Esq.	5	3	6	630	65·16	197
„ (Station)	E. Greenwood, Esq.	10	5	0	640	53·66	...
Standedge	„ „ „	10	2	0	1150	69·25	...
Ackworth School	A. Wright, Esq.	5	0	3	135	29·88	176
Huddersfield (Longwood)	C. K. Hare, Esq.	10	4	6	600	44·81	224
„ (Dalton)	J. W. Robson, Esq.	5	0	6	350	45·11	216
Goole	T. Kendall, Esq.	12	3	4	...	27·58	192
Todmorden	J. Stansfield, Esq.	6	1	4	490	65·87	168
„ (Stansfield Hall)	J. Fielden, Esq.	8	13	8	500 ?	46·50	...
*Huddersfield (Rastrick)	A. Clay, Esq.	5	1	3	410	44·36	221
Halifax (King's Cross)	J. Gledhill, Esq.	12	30	0	690	32·27	189
† „ (Well Head)	J Waterhouse, Esq. F.R.S	12	0	11	487	43·24	229
„ (Warley Moor)	J. Richardson, Esq. C.E.	...	1	0	1425	59·40	...
„ (Midgeley „)	„ „ „	...	1	0	1350	63·50	...
„ (Ovenden „)	„ „ „	...	1	0	1375	57·20	...
Bradford (Mechanics' Institute)	C. Lund, Esq.	8	48	0	373	41·19	194
„ (Manywells)	C. Gott, Esq.	...	0	9	700	50·86	196
„ (Chellow Dean)	„ „	...	5	0	650	42·06	163
„ (Doe Park)	„ „	...	0	9	810	57·91	218
„ (Queensbury)	W. Forster, Esq.	5	5	4	1050	52·05	152
Leeds (Leventhorpe Hall)	J. T. Leather, Esq.	10	2	0	90	31·01	...
† „ (Holbeck)	Marshall and Co.	10	32	0	127	31·05	169
„ („)	„ „ „	5	1	0	95	34·89	169
† „ („ W. Works Depot)	E. Filliter, Esq., C.E.	10	0	0	95	34·57	165
„ (Eccup)	„ „ „	10	0	0	340	35·55	135
„ (Westwood)	H. C. Marshall, Esq.	5	1	0	400	35·98	208
„ (Philos. Hall)	H. Denny, Esq.	10	48	0	137	26·49	191
Shipley (Victoria Park)	Rev. H. M. Stallybrass	5	6	0	360	42·33	...
Keighley (Braithwaite)	Mr. W. Shackleton	6	5	0	770	49·30	190
Otley (East Chevin)	W. Lawson, junr., Esq	8	4	7	764	38·49	200
Otley	H. Thorns, Esq.	8	0	7	206	37·98	170
Ilkley	Dr. Scott	5	0	6	500	46·25	158
†York (Bootham)	F. Thorpe, Esq.	5	0	6	50	25·71	186
† „ (Coney Street)	Mr. Sigsworth	5	8	0	40	26·03	155
„ (Cherry Hill)	H. Richardson, Esq.	...	1	4	60	26·39	...
Thornton-in-Craven	T. Wilson, Esq.	5	5	4	456	50·85	232
†Harrogate	Dr. Bainbridge	8	0	6	420	39·44	210
Skipton	Rev. R. H. Sidgwick	10	0	6	430	73·09	234
„ (Woodlands)	J. Heelis, Esq.	5	0	8	430	50·63	211
Settle	J. Tatham, Esq.	12	40	0	498	56·17	...
Arncliffe	Rev. W. Boyd	8	2	8	750	75·97	194
Ripon	F. W. Stow, Esq.	4	0	6	112	34·53	204
„	„ „ „	5	1	0	112	34·02	204
„	„ „ „	12	5	0	116	33·03	204
Sedbergh	Miss Elam	...	1	1	400 ?	71·05	225
E. RIDING.							
†Patrington	W. B. Pugh, Esq.	10	4	8	32	22·52	...
†Hull (Manor House Street)	W. Lawton, Esq.	5	0	10	14	26·53	185

DIVISION IX.—YORKSHIRE—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft in.	feet.	inches.	
E. RIDING—(*con.*)						
†Hull (Beverley Road)	J. Smith, Jun., Esq.	8	3 10	11	29·20	203
„ (Baker Street)	A. O. Atkinson, Esq.	...	1 6	10?	25·79	...
†Holme-on-Spalding-Moor	G. Dunn, Esq.	5	3 0	30	26·55	218
Thorganby (Thicket Priory)	Miss M. C. D. Jefferson	6	1 4	26	22·79	148
Pocklington (Warter)	J. Coxon, Esq	...	...	...	31·39?	...
N. RIDING.						
Flaxton	H. Richardson, Esq.	5	1 0	120	25·29	...
†Malton	H. Hurtley, Esq.	10	1 0	73	31·62	...
Easingwold (Crayke)	*York Herald*	...	...	...	28·52	...
*Filey Reservoirs	D. Philliskirk, Esq.	5	9 0	183	25·71	213
Thirsk	A. O. Atkinson, Esq.	...	2 6	114	27·67	...
Beadlam Grange	J. H. Phillips, Esq.	5	0 6	192	32·04	...
Scarborough	Dr. Cornelius Fox	5	1 0	102	31·44	221
*Northallerton	W. T. Jefferson, Esq.	5	1 0	...	31·50	...
Catterick (Tunstall)	H. C. Marshall, Esq.	5	1 0	350	28·79	...
Richmond (Aske)	Earl Zetland	12	2 8	550	35·05	...
*Whitby	M. Simpson, Esq.	5	2 0	184	28·30	...
„ (Ruswarp)	A. O. Atkinson, Esq.	..	1 6	7	31·70	...
* „ (Port Mulgrave)	A. S. Palmer, Esq.	5	6 0	356	20·17	...
Middlesborough (Marton Hall)	H. Bolckhow, Esq.	...	1 3	120	25·86	...
Middlesborough	W. Fallows, Esq.	...	2 0	21	22·61	141

DIVISION X.—NORTHERN COUNTIES.

DURHAM.						
Eaglescliffe [Yarm]	Rev. J. Hull	5	1 0	80	26·47	198
*Darlington (Dinsdale)	Rev. J. W. Smith	5	1 6	50	29·25	204
„ (Southend)	Mr. J. Richardson	5	4 0	140	38·71	166
Winston (Stubb House)	T. Dodgson, Esq.	5	0 9	458	29·33	...
Stockton-on-Tees	G. Alexander, Esq.	12	9 0	40	28·34	...
Wolsingham (St. John's)	W. Backhouse, Esq.	5	1 1	908	36·90	215
Stanhope Castle	Mr. T. Surtees	8	4 0	670	41·14	...
Durham (S. Cuthbert's Col. Ushaw)	Rev. Dr. Gillow	5	0 10	600	31·30	190
Seaham (Hall)	R. Draper, Esq.	5	1 0	100	28·32	154
„ (Vicarage)	Rev. A. Bethune	5	0 4	80	29·42	158
†Sunderland (Hendon Hill)	J. W. Mounsey, Esq.	5	1 6	120	27·84	190
„ (West Hendon)	T. W. Backhouse, Esq.	5	1 0	125	27·90	191
Bishopwearmouth	Dr. Ogden	8	30 0	130	22·22	181
„ (Esplanade)	Dr. Pyle	...	8 2	128	30·58	198
Gateshead (Burghfield Grange)	G. Wailes, Esq.	10	0 6	68	26·39	202
NORTHUMBERLAND.						
Allenheads	T. J. Bewick, Esq., C.E.	8	0 5	1360	56·89	242
„	„ „ „	12	6 9	1367	60·37	240
Haltwhistle (Whitfield)	Rev. J. M. Mason	5	1 0	806	44 71	210
Bywell	Mr. J. Dawson	8	0 6	87	29·19	229
Newcastle (Philos. Soc.)	W. Lyall, Esq.	8	1 2	150	22·19	169
†North Shields (Rosella Place)	R. Spence, Esq.	8	1 0	124	26·43	188

DIVISION X.—NORTHERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground. ft.	in.	Height Above SeaLevel feet.	Depth of Rain. 1866 inches.	Days on which ·01 or more fell.
NORTHUMBERLAND—(*con.*)							
North Shields (Low Lights)	J. R. Procter, Esq.	8	3	1	20	26·62	192
„ (Tynemouth)	P. J. Messent, Esq.	...	2	6	60	23·68?	...
* „ (Whitley)	Rev. R. F. Wheeler	5	0	11	83	28·35	122
Stamfordham	Rev. J. F. Bigge	8	1	0	400	30·09	...
„ (Church Tower)	„ „ „	12	42	0	456	21·13	...
Hexham (Parkend)	M. A. Ridley, Esq.	...	0	4	277	41·83	227
Bellingham (Hesleyside)	W. H. Charlton, Esq.	10	3	4	420	54·19	...
Hartburn (Wallington)	H. Laws, Esq.	5	1	0	398	36·10	225
Bellingham (Otterburn)	Rev. T. Wearing	10	1	3	500	36·03	...
Morpeth (Brenckburn Priory)	C. H. Cadogan, Esq.	5	1	0	200	33·87	147
Deadwater [on the borders]	Hawick Farmers' Club	...	...		...	55·40	...
Alnwick (Glanton Pyke)	F. W. Collingwood, Esq	8	0	8	534	35·06	...
Howick	Earl Grey	8	0	10	126	28·88	168
Lilburn Tower	E. J. Collingwood, Esq	10	6	0	290	30·06	...
Belford (Middleton Hall)	J. T. Leather, Esq	10	2	0	240	26·89	...
Bamburgh (North Sunderland)	Rev. F. R. Simpson	...	1	2	...	25·75	189
*Wooler (Milfield)	G. A. Grey, Esq.	5	0	4	200	32·18	...
CUMBERLAND.							
Bootle (Whitbeck)	Rev. T. Ormandy	2	1	0	...	49·88	203
„ (Rectory)	Rev. A. Wilkin	8	1	0	87	52·14	211
Whitehaven (Braystones)	J. D. Watson, Esq	10	3	8	36	40·80	...
„ (Millgrove	I. Fletcher, Fsq. F.R.S	...	...		210	47·00	...
Mountain Gauges, read monthly. (*Letters refer to Map facing p. 104.*) Scawfell Pike (C)	„ „ „	4	0	6	3200	68·66	...
Esk Hause (c)	„ „ „	4	0	6	2550	91·13	...
Great End (b)	„ „ „	4	0	6	2982	78·93	...
†Wasdale Head (A)	„ „ „	4	0	6	247	102·58	...
Brant Rigg (B)	„ „ „	4	0	6	695	89·63	...
Sprinkling Tarn (E)	„ „ „	4	0	6	1985	139·47	...
Mosedale (a)	„ „ „	4	0	6	624	108·07	...
Stye Head Tarn (D)	„ „ „	4	0	6	1472	135·06	...
The Stye (e)	„ „ „	4	0	6	1077	224·56	...
Seathwaite (d)	„ „ „	4	0	6	422	166·71	...
†Seathwaite (read daily) (F)	„ „ „	5	1	0	422	179·12	234
Stonethwaite (G)	„ „ „	4	0	6	330	131·11	...
†Penrith (Hallsteads)	Mr. Sinclair	10	4	0	430	67·30	...
† „ (Wateamillock)	Mr. W. Rumney	10	3	6	720	65·20	...
†Keswick (Crow Park)	H. C. Marshall, Esq.	10	4	0	260	64·30	...
† „ („ „)	„ „	7	1	9	260	65·60	...
† „ (Derwent Island)	„ „ „	5	1	0	240	70·45	193
† „ (Post Office)	Mr. Crosthwaite	5	1	0	270	70·81	174
†Bassenthwaite (Mirehouse)	Mrs. Spedding	5	0	7	310	62·53	198
Cockermouth (Whinfell Hall)	W. Robinson, Esq.	5	2	0	266	63·48	239
Workington (Stainburn)	C. Litt, Esq.	8	1	0	101	39·54	195
Cockermouth	Dr. Dodgson	8	0	6	158	50·77	207
„ (on a post)	„ „ „	8	6	6	164	48·19	...
„ (on Church Tower)	„ „ „	8	100	0	260	31·30	...
„ (Tarnbank)	I. Fletcher, Esq., F.R.S.	8	0	6	225	51·50	216

DIVISION X.—NORTHERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain 1866	Days on which .01 or more fell.
			ft. in.	feet.	inches.	
CUMBERLAND—(*con.*)						
Cockermouth (Tarnbank)	I. Fletcher, Esq. F.R.S	10	5 0	230	50·80	216
„ „	„ „ „	12	40 0	272	38·25	212
„ (Higham)	T. A. Hoskins, Esq.	...	0 6	488	53·89	189
„ (Oakhurst)	I. Fletcher, Esq. F.R.S.	...	...	200	47·68	...
„ (Bridekirk)	J. Carter, Esq.	...	0 6	350 ?	47·77	...
Penrith	T. Lester, Esq.	...	0 9	...	32·45	...
† „ (Edenhall)	Mr. T. Bowstead	5	...	...	36·75	...
Alston (Nenthead)	Rev. W. Dalton	5	1 0	1416	51·15	...
Wigtown (Brookfield)	I. Fletcher, Esq. F.R.S.	...	6 0	130 ?	36·93	...
Silloth	Rev. F. Redford	8	3 0	28	36·76	181
Carlisle (Cemetery)	Mr. J. Cameron, Jun.	8	0 0	114	27·50	182
„ (Scaleby)	R. A. Allison, Esq	12	0 8	...	34·30	...
WESTMORELAND.						
Kirkby Lonsdale (Casterton)	S. Morris, Esq.	8	1 0	267	61·85	187
„ „ (Biggins House)	Miss Tomlinson	12	3 6	400 ?	61·63	...
„ „ (Whelprigg)	Mrs. Gibson	5	3 0	475	61·88	...
„ „ (Rigmaden)	E. Wilson, Esq.	...	3 0	350	61·14	...
„ „	W. Harrison, Esq.	5	1 2	209	62·23	...
„ „ (Vicarage)	Rev. H. Ware	5	1 1	210	62·51	...
†Kendal	S. Marshall, Esq.	8	4 6	149	60·39	191
Windermere (High House)	E. Hayton, Esq	8	3 0	636	64·16	...
„ (The Briery)	G. Fothergill, Esq.	12	6 0	200	76·19	197
„ (Ibbotsholme)	S. Taylor, Esq.	8	3 0	180	77·70	...
†Ambleside (Low Nook)	J. C. Wilson, Esq	5	1 2	170	94·27	251
† „ (Lesketh How)	Dr. J. Davy, F.R.S.	8	3 0	200	99·81	249
†Windermere (The Howe)	Admiral Wilson	8	1 2	470	98·69	199
†Ambleside (Loughrigg)	E. B. W. Balme, Esq.	8	0 9	553	97·05	240
*Kirkby Stephen	T. Mason, Esq.	5	1 1	574	47·41	183
†Patterdale Hall	Mr. Sinclair	7	2 0	500	101·03	315
†Green Side (Stang End)	Mr. J. Barningham	7	1 6	1550	99·62	...
Appleby	Dr. Armstrong	8	1 0	442 ?	39·36	206
†Great Strickland [Penrith]	H. Plumer, Esq	5	1 6	650	46·00	192
†Brougham Hall [Penrith]	Mr. G. Campbell	5	1 0	470	44·71	115

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS.

MONMOUTH.						
*Newport (Isca Foundry)	J. Laybourne, Esq.	5	1 0	...	47·90	155
* „ (Llanfrechfa Grange)	F. J. Mitchell, Esq.	5	1 0	360	48·43	179
Chepstow	J. G. Wood, Esq.	...	3 6	200	44·40	184
*Newport (Abercarn)	Rev. D. Charles	5	1 3	450	60·45	173
Tintern Abbey	Mr. W. Bowen	5	1 0	16	44·66	176
Tredegar (Blaina)	H. Soper, Esq.	5	0 9	1100	58·22	236
„ (Ebbw Vale)	P. James, Esq.	5	1 0	918	64·86	205
„ (Sirhowy)	R. Jordan, Esq.	5	6 6	1058	44·18	221

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(*continued*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which '01 or more fell.
			ft. in.	feet.	inches	
GLAMORGAN.						
*Cowbridge (The Ham)	G. W. Nicholl, Esq.	8	1 2	55	41·56	193
Cardiff (Free Library)	W. Adams, Esq.	...	1 0	20	43·38	...
„ (Town Hall)	T. Waring, Esq.	5	1 1	20	49·42	226
„ (Spring Bank)	H. Bowen, Esq.	10	4 6	50	44·46	...
„ (Ely)	T. G. South, Esq.	5	3 0	15	49·56	182
Swansea	J. W James, Esq.	12	14 9	20	33·20	185
Tynant (Pentyrch)	F. G. Evans, Esq.	5	1 1	100	59·00	232
Merthyr Tydfil (Troedyrhiew)	E. W. Scale, Esq.	...	3 0	500	59·31	...
„ „ (Thomas Town)	T. J. Dyke, Esq.	...	...	550	58·39	204
CARMARTHEN.						
Pembrey (Burry Port)	D. M. Lewellyn, Esq.	5	0 11	7	41·93	222
Langharne (Llanstephan)	W. Ainslie, Esq.	5	0 5	35	37·36	227
*Carmarthen—(Plas Cwrt Hyr)	W. E. Gwynn, Esq.	5	1 0	90	53·63	175
„ (Gaol)	G. Stephens, Esq.	8	3 6	72	48·24	230
Llandissilio (Rhydwen)	H. S. Morgan, Esq.	10	1 0	150	46·00	156
PEMBROKE.						
*Tenby (Caldy Island)	Mr. Fletcher	5	1 0	165	39·31	...
Pembroke Dock	E. Chevallier, Esq.	8	4 0	30	42·53	158
*Haverfordwest	E. P. Phillips, Esq.	5	1 0	85	54·97	182
CARDIGAN.						
Cardigan (Kilgerran)	Rev. D. Evans	5	1 2	80	44·06	205
Lampeter	Rev. J. Matthews	8	5 0	420	50·86	221
Aberystwith (Goginan Mine)	H. Thomas, Esq.	...	4 0	290	48·12	...
„ (Logylas)	„ „	5	3 6	375	60·23	...
„ (Frongoch Mine)	„ „	...	4 0	855	64·74	...
„	T. Paul, Esq.	5	1 0	50	47·64	230
BRECKNOCK.						
Hay (Pen-y-maes)	Captain Brown	5	1 0	400	36·65	...
RADNOR.						
*Presteign	Captain Hannam	5	1 0	550	39·04	229
Rhayader (Cefnfaes)	Mrs. Jones	5	2 0	880	51·05	216
MONTGOMERY.						
Llanidloes (Broomcliff)	T. F. Roberts, Esq.	5	3 10	750	58·07	204
FLINT.						
†Hawarden [Chester]	Dr. Moffat	8	1 0	270	29·82	165
Holywell (Maes y dre)	J. Williams, Esq.	10	5 0	400	26·93	...
St. Asaph (Brynbella) (33)	P. P. Pennant, Esq.	...	1 0	280	29·92	...
*†Rhyl (Gas Works) (31)	Mr. E. Evans	5	4 2	20	26·50	...
DENBIGH.						
Chirk (Brynkinalt)	Mr. Hall	8	0 9	...	36·34	110
Wrexham (Brymbo)	C. E. Darby, Esq.	6	6 3	550?	36·45	...
Wrexham (Grove Lodge)	C. Napier, Esq.	...	1 0	...	32·84	...
„ (Gwersyllt Hill)	W. Lassell, Jun., Esq.	4	2 0	400?	36·62	...
*Denbigh (Plâs Clough) (32)	J. Harrison, Esq.	5	0 9	...	34·43	203
†Llandudno (Warwick House) (29)	Dr. Nicol	8	0 6	99	33·55	178
MERIONETH.						
*Dolgelly (21)	Captain Mathew	5	1 0	43	69·68	206
* „ (Brithdin) (28)	J. Hill, Esq.	5	2 0	500	61·71	...

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which 01 or more fell.
			ft. in.	feet.	inches.	
MERIONETH—*con.*						
Bala .....(20)	Captain Mathew	5	1 0	544	65·23	264
*Trawsfynydd .....(4)	„ „	5	0 7	700	59·51	142
Hendre .....(35)	F. C. Ball, Esq.	...	1 6	80?	50·35	...
*Festiniog (Blaenyddob).....(3)	Captain Mathew	5	1 0	600	84·72	257
*Rhiw brifdir .....(15)	„ „	5	10 0	1140	114·17	259
Corwen (Rhug) .....(37)	W. Wagstaff, Esq. ...	8	4 0	500?	47·55	...
CARNARVON.						
Aberdaron (Sarn).....(22)	Mr. W. Jones.....	12	5 0	340	45·50	219
Pwllheli	J. T. Evans, Esq.	5	2 0	12	34·85	...
* „ (Bodfaen) .....(17)	Captain Mathew	5	...	...	46·27	230
*Llanystumdwy (Talarvor) ...(16)	„ „	5	3 0	50	40·20	225
*Llangybi .....(6)	„ „	5	1 1	200	51·30	245
*Port Madoc.....(1)	„ „	5	3 0	10	51·09	226
†*Beddgelert (Sygun).....(5)	„ „	5	5 6	330	113·57	211
Clynnog.....(18)	„ „	5	1 0	70	55·43	206
Snowdon (Hafod y llan).....(38)	„ „	5	5 0	1300	127·38	203
*Llanllyfni (Cilgwyn) .....(13)	„ „	5	1 0	500	33·98	170
*Bettws y Coed .....(14)	„ „	5	1 2	70	73·99	188
†*Llanberis (R. Vict. Hotel) ...(9)	„ „	5	1 0	370	89·11	203
* „ (Dinorwic Quarry) (10)	„ „	5	1 10	850	73·61	...
* „ (Glyn Padarn) .....(8)	„ „	5	1 0	377	74·01	233
Carnarvon (Cochsidia).....(39)	„ „	5	1 1	120	42·73	215
* „ (Plas Brereton) ...(7)	T. Turner, Esq.	5	1 0	25	42·69	224
*Bethesda (Penrhyn Quarry)..(11)	Captain Mathew	5	5 0	1000	58·08	191
* „ (Brynderwen) .....(12)	„ „	5	1 0	550	70·30	207
†Llanfairfechan .....(26)	R. Luck, Esq.....	5	0 8	150	43·53	181
*Conway (Morfa) .....(19)	Captain Mathew	5	1 0	15	30·80	...
ANGLESEA.						
Menaifron .....(23)	Rev. W. W. Williams, jr.	5	4 9	17	40·03	223
Beaumaris (Henllys) .....(30)	Miss Hampton	...	1 6	150	44·55	...
Llanfairynghornwy .....(24)	Captain Mathew	...	5 0	120	36·33	200
ISLE OF MAN.						
Calf of Man.....	Bd. of Northern Lights	...	0 10	325?	23 64	...
Douglas Head.....	„ „ „	...	0 6	...	52·80	...
Point of Ayre	„ „ „	...	3 4	27?	32·19	...
GUERNSEY.						
Guernsey	Dr. Hoskins, F.R.S. ...	12	12 0	204	44·12	192
„ (Court Place)	W. Hickinbotham, Esq.	5	2 0	200	37·86	205
„ (Grange Road).....	Dr. Mansell	5	1 3	150	44·50	196
JERSEY.						
Millbrook	P. Langlois, Esq.	5	1 0	50	35·09	209
St. Helier's	W. Barkas, Esq.	...	12 0	70	31·90	223
„ (Waverley).....	Captain Tompson, R.N.	8	0 9	40	36·33	201
St. Brelade's	G. Morley, Esq.....	5	1 3	150	33·11	...
ALDERNEY.						
Alderney	J. May, Esq.	12	10 0	48	32·24	194
SARK.						
Sark Parsonage	Rev. T. L. V. Cachemaille	5	1 0	340	31·26	185

REPRINTED FROM BRITISH RAINFALL 1864 WITH CORRECTIONS TO 1867.

A SKETCH
shewing the position of
Mr. FLETCHER'S RAIN GAUGES
in the
LAKE DISTRICT OF CUMBERLAND.

Scale of 0 1 2 3 4 Stat. Miles.

Started in 1864 marked ●

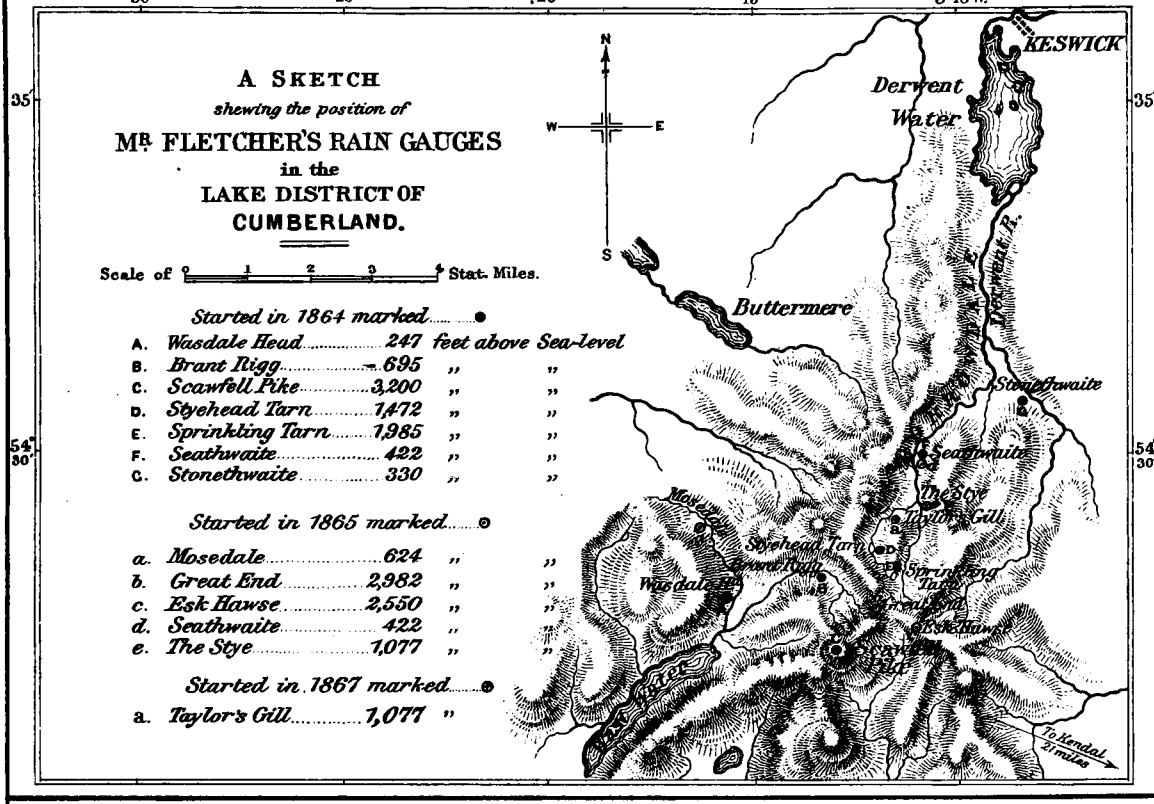
A.	*Wasdale Head*	247	*feet above Sea-Level*
B.	*Brant Rigg*	695	,, ,,
C.	*Scawfell Pike*	3,200	,, ,,
D.	*Styehead Tarn*	1,472	,, ,,
E.	*Sprinkling Tarn*	1,985	,, ,,
F.	*Seathwaite*	422	,, ,,
G.	*Stonethwaite*	330	,, ,,

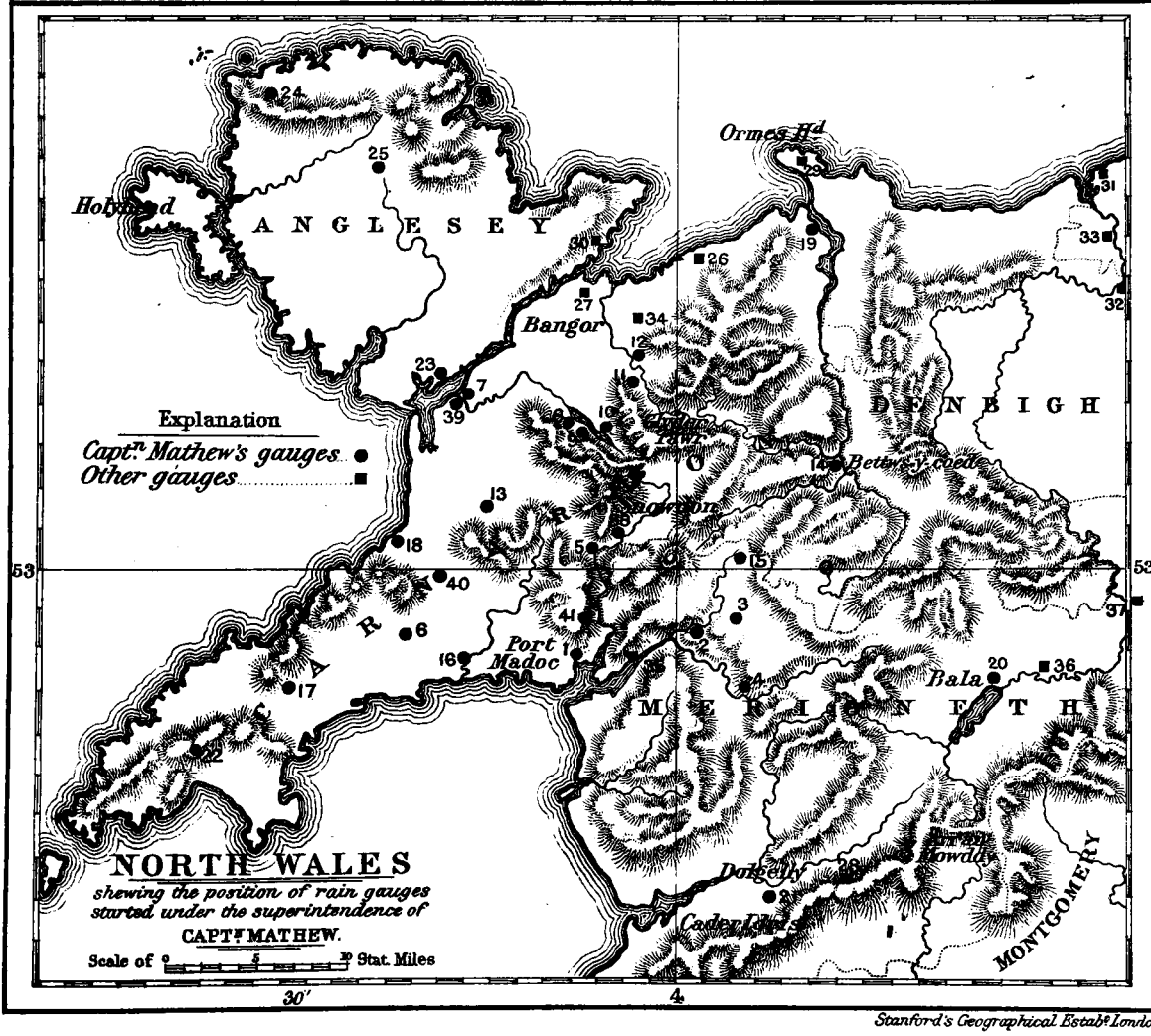
Started in 1865 marked ⊙

a.	*Mosedale*	624	,, ,,
b.	*Great End*	2,982	,, ,,
c.	*Esk Hawse*	2,550	,, ,,
d.	*Seathwaite*	422	,, ,,
e.	*The Stye*	1,077	,, ,,

Started in 1867 marked ⊛

a.	*Taylor's Gill*	1,077	,,





Stanford's Geographical Estab.t London

SCOTLAND.

DIVISION XII.—SOUTHERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches	
WIGTOWN.						
Mull of Galloway	Bd. of Northern Lights	...	...	...	30·48	...
*Wigton (N. Balfern)	T. MacLelland, Esq....	5	1 0	50	47·87	231
Stranraer (South Cairn)	Mr. J. Kennedy	2	0 4	209	50·10	188
Corsewall	Bd. of Northern Lights	...	3 4	22 ?	38·46	...
KIRKCUDBRIGHT.						
Little Ross	Bd. of Northern Lights	...	3 3	130 ?	28·70	...
*Dalbeattie	J. Grieve, Esq.	5	0 8	25 ?	51·16	187
Cargen [Dumfries]	P. Dudgeon, Esq.	3	0 3	80	50·17	148
New Galloway	R. McKay, Esq.	8	20 0	200	57·93	212
* „ (Waterside)	P. Dalziel, Esq.	5	0 5	215	62·55	178
„ (Glenlee)	Mr. W. Melville	...	1 6	217	65·50	...
*Carsphairn	J. Hannah, Esq.	...	3 11	600	68·69	132
DUMFRIES.						
Annan (Warmanbie)	Rev. F. Redford	8	3 0	100	43·22	199
„ (Comlongon Castle)	W. Hartley, Esq.	5	1 2	80	41·07	191
Dumfries (Crichton Asylum)	Dr. Gilchrist	...	0 3	182	42·05	242
„ (March Hill Cott.)	Mr. T. Hogg	5	0 5	70	36·45	196
Canobie	J. Little, Esq.	...	...	140	40·80	...
Thornhill (Glencairn)	Rev. R. Home	6	0 9	350	59·60	213
Kirkpatrick Juxta	R. Little, Esq.	3	0 5	...	58·30	...
„ (Wallace Hall)	C. T. Ramage, Esq. ...	3	0 6	206 ?	42·50	...
Wanlockhead	Mr. G. Dawson	3	0 4	1330	66·89	197
Langholme	J. Little, Esq.	...	0 6	270	61·90	...
Westerkirk	„ „ „	...	0 6	420	67·20	...
Eskdale. Ewes	„ „ „	...	0 6	407	54·70	...
Eskdale. Carlesgill	„ „ „	...	0 6	370	67·80	...
Eskdale. Eskdalemuir	„ „ „	...	0 6	612	68·20	...
Ettrick Pen Top	„ „ „	...	0 6	2268	91·10	...
Liddlesdale (Whithaugh)	„ „ „	...	0 6	400	58·75	...
ROXBURGH.						
New Castleton (Kirndean)	Miss Elliot	3	0 6	400 ?	52·40	...
„ „ (The Flatt)	J. Elliot, Esq	3	0 6	340	53·20	...
Hawick (Falnash)	Hawick Farmers' Club	...	0 6?	800 ?	60·10	...
„ (Borthwickbrae)	A. E. Lockhart, Esq...	...	0 2	800	50·60	...
„ „ (Wolfelee)	Hawick Farmers' Club	...	...	...	46·74	...
„ (Goldielands)	Dr. Elliott	...	0 9?	505	41·92	...
„ (Lynnwood)	„ „ „		0 6?	387	35·30	...
„ (Slitrig Crescent)	A. R. Turnbull, Esq ...	5	26 4	384	34·21	212
* „ (S. verbut Hall)	Mr. D. Elder	5	4 0	512	34·52	215

DIVISION XII.—SOUTHERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell
			ft. in.	feet.	inches.	
ROXBURGH—*(con.)*						
Harwick (Kirkton)	Hawick Farmers' Club	...	0 6?	...	37·30	...
*Jedburgh (Sunnyside)	G. Hilson, Jun., Esq.	...	10 0	333	22·92	...
Galashiels (Wooplaw)	J. Murray, Esq.	5	0 7	890	35·17	214
Kelso (Springwood Park)	Sir G. Douglas, Bt	10	1 0	130	26·58	172

DIVISION XIII.—SOUTH-EASTERN COUNTIES.

SELKIRK.						
Selkirk (Bowhill)	Mr. J. Mathison	11	4 0	537	33·19	...
PEEBLES.						
Penicuick (N. Esk Reservoir)	Mr. J. Garnock	...	0 6	1150	38·95	156
BERWICK.						
Lauder (Thirlestane Castle)	Mr. J. Whitton	3	0 3	558	36·65	129
Dunse (Mungo's Walls)	Mr. J. Thompson	3	0 6	267	29·70	191
St. Abb's Head	Bd. of Northern Lights	...	0 4	211 ?	20·28	...
HADDINGTON.						
Prestonkirk (Smeaton)	Mr. J. Black	7	8 0	100	22·67	173
Haddington (Millfield)	Mr. T. Dods	6	4 6	140	24·80	...
„ (East Linton)	Mr. J. Storie	3	0 3	90	21·50	165
Drem (Fenton Barns)	G. Hope, Esq.	3	1 0	103	26·25	...
EDINBURGH.						
Cobbinshaw Reservoir	J. Deas, Esq., C.E.	6	0 7	863	41·90	176
Harlaw	A. Ramsay, Esq.	...	0 6	807	39·10	...
Glencorse	„ „ „	...	0 6	787	38·53	155
Swanston	„ „ „	...	0 6?	555	37·00	...
Colinton (Fernielaw)	J. Leslie, Esq.	11	0 6	500	36·60	...
Inveresk	Mr. McAuslane	9	2 0	60	28·98	173
Costorphine (Meadowfield)	A. Paterson, Esq.	8	9 4	155 ?	24·88	...
Edinburgh (Charlotte Square)	J. Leslie, Esq.	11	0 6	230	26·73	...
„ „ „	„ „ „	11	63 0	300	18·75	...
„ (March Hall)	A. K. Johnstone, Esq.	...	0 3	270	28·08	...
„ (Castle)	Sergeant Hemming	8	1 0	403	26·73	200
„ „ „	„ „	8	1 0	526	23·83	200
Inchkeith	Bd. of Northern Lights	...	3 0	182 ?	23·79	...

DIVISION XIV.—SOUTH-WESTERN COUNTIES.

LANARK.						
Douglas (Newmains)	Mr. J. Russell	2	0 2	783	50·78	184
Uddingston (Meadowbank)	J. Anderson, Esq.	5	13 0	75	28·55	...
Lanark	G. T. Thornton, Esq.	5	1 0	505	36·32	231
Hamilton (Murdostan Castle)	Mr. Armour	10	4 0	550	34·60	...
„ (Auchinraith)	R. Ker, Esq.	10	4 2	150	34·19	...
„ (Bothwell Castle)	Mr. A. Turnbull	10	18 0	147	33·85	192
Glasgow (St. George's Road)	M. J. Bell, Esq.	...	1 0	140	43·99	...
„ (Cessnock Park)	R. Hart, Esq.	10	4 4	30	41·01	...
„ (Baillieston)	Mr. P. Jarvie	6	0 3	230	49·32	209

DIVISION XIV.—SOUTH-WESTERN COUNTIES—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground	Height Above Sea Level	Depth of Rain. 1866	Days on which 01 or more fell.
			ft. in.	feet.	inches.	
LANARK—(*con.*)						
Coatbridge	J. Baker, Esq.	5	1 2	275	26·26	136
Shotts (Hillend House)	Mr. D. Thompson	10	7 0	620	34·89	217
AYR.						
Girvan	Mr. P. Paterson	...	0 6	15	55·64	175
New Cumnock (Whitehills)	W. Lennox, Esq.	5	1 0	860	55·51	238
Ayr (Auchendrane House)	E. Cathcart, Esq.	...	2 3	94	49·84	206
Dalry (Blair)	Captain Blair, R.N.	...	0 0	150	60·26	229
Kilmarnock	J. M. Gale, Esq.	...	...	330	46·93	...
Largs (Mansfield)	Dr. Campbell	10	0 6	30	54·70	...
„ (Brisbane House)	„ „ „	10	0 9	125	55·80	...
RENFREW.						
Gorbals's District. Ryat Lynn	‡Glasgow Water Works	...	0 5	310	52·55	179
Gorbals's District. Waulk Glen	„ „ „	...	0 5	280	55·90	182
Gorbals's District. Middleton	„ „ „	...	0 5	550	61·46	...
Gorbals's District. Black Loch	„ „ „	...	0 5	700	59·60	...
Eaglesham (Revoch)	Mr. J. Scott	4	0 3	700	56·50	...
Mearns (Newton)	P. R. Murdoch, Esq.	...	0 8	360	55·80	...
„ (Nither Place)	W. Mather, Esq.	5	0 5	350	54·25	...
„ (Kilbarchan)	D Robie, Esq.	5	0 8	350	74·20	172
Greenock (Hamilton Street)	J. Gardner, Esq.	6	0 6	50	73·91	258
„ (Gourock)	W. Melvin, Esq.	...	0 6	250 ?	74·78	...

DIVISION XV.—WEST MIDLAND COUNTIES.

DUMBARTON.						
Dumbarton (Cardross)	J W. Burns, Esq.	...	0 0	50	64·60	182
„ (Balloch Castle)	A. J. D. Brown, Esq.	7	0 4	91	61·59	229
Loch Lomond (Luss)	A. McDougall, Esq.	5	1 6	70	96·06	...
„ „ (Stuckgown)	Captain Ainsworth	...	2 4	100 ?	10·04	245
„ „ (Ardlui)	A. McDougall, Esq.	3	0 6	50 ?	131·30	...
„ „ (Firkin)	„ „	3	0 5	100	109·80	...
Loch Long (Arddaroch)	J. White, Esq.	5	1 0	80	89·35	210
„ „ (Arrochar)	A. McDougall, Esq.	6	0 3	20 ?	108·30	...
STIRLING.						
Mugdock Reservoir	Glasgow Water Works	...	0 6	320	55·20	131
Stirling (Polmaise Gardens)	Mr. Gorrie	...	0 1	12	42·50	...
„ (Blairhoyle)	Mr. W. Munro	5	1 6	...	54·67	151
Ben Lomond	Glasgow Water Works	...	0 6	1800	100·10	...
BUTE.						
Pladda	Bd. of Northern Lights	...	3 3	55 ?	44·16	...
Cumbrae	J. Miller, Esq.	6	4 9	50	44·40	...
ARGYLL.						
Mull of Cantire	Bd. of Northern Lights	...	...	279 ?	47·54	...
Campbeltown (Devaar)	„ „ „	...	3 4	75 ?	51·67	...
Islay	R. Ballingal, Esq.	3	0 1	70	63·66	252
„ (Rhinns)	Bd. of Northern Lights	...	3 0	74 ?	38·71	...

‡ Information supplied by J. M. Gale, Esq., Engineer.

DIVISION XV.—WEST MIDLAND COUNTIES—*(continued.)*

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches.	
ARGYLL—*(con.)*						
Islay (Mc Arthurshead)	Bd. of Northern Lights	...	0 4	106 ?	80·60	...
Tarbert (Stonefield)	C. G. Campbell, Esq.	3	1 3	90	86·01	206
Castle Toward	Mr. W. Milne	5	4 0	80 ?	63·85	234
Lochgilphead (Kilmory)	Sir J. P. Orde, Bart.	6	0 4	100 ?	73·40	...
„ (Callton Môr)	Mr. J. Russell	8	4 6	65	63·90	238
Kilmartin (Largie)	Mr. Martin	...	4 4	64	66·50	...
Jura Sound (Fladda)	Bd. of Northern Lights	...	0 6	20 ?	85·80	...
Lochgoilhead (Upper Glencroe)	A. McDougall, Esq.	3	0 6	400	144·70	...
Loch Fyne (Cairndow No. I.)	„ „	3	...	30	103·60	...
„ „ („ No. II.)	„ „	8	...	30	99·61	...
„ „ (Glen Fyne)	„ „	3	3 6	50	128·60	...
Melfont	A. Buchan, Esq.	...	...	...	85·04	...
*Mull (Bunessan)	W. McLean, Esq.	5	4 0	30	58·93	216
„ (Ardfinaig)	W. Murray, Esq.	5	1 2	20	92·40	182
Appin (Airds Ho)	R. Macfie, Esq.	6	0 2	30	64·20	..
Inverary Castle	Mr. J. Caie	4	0 1	30	77·00	...
Tyree	L. Macquarie, Esq.	..	0 5	100	44·56	239
Dalmally (Bridge of Orchy)	A. McDougall, Esq.	3	0 6	600 ?	109·00	...
Lismore	Bd. of Northern Lights	...	3 4	37 ?	53·83	...
„ (Hynish)	„ „ „	...	...	...	78·72	...
Loch Eil (Corran)	„ „ „	...	0 4	14 ?	94·36	...
Sound of Mull	„ „ „	...	0 6	12 ?	79·40	...
Ardnamurchan	„ „ „	...	3 6	82 ?	51·00	...
„ (Camusinas)	J. J. Dalgleish, Esq	5	0 2	40	115·13	236

DIVISION XVI.—EAST MIDLAND COUNTIES.

CLACKMANNAN.						
Dollar	Mr. J. Westwood	7	0 4	170	46·83	...
KINROSS.						
Loch Leven Sluice	Mr. P. Farnie	...	0 10	...	37·70	...
FIFE.						
Burntisland	Mr. Macbean	...	0 6	80	26·46	180
Dunfermline (Craig Ruscar)	W. Chisholm, Esq.	16	0 10	458	29·57	...
Balfour	Mr. J. Dewar	3	0 6	129	31·82	164
Leven (Nookton)	W. McG. Miller, Esq.	5	0 6	80	29·19	186
Isle of May	Bd. of Northern Lights	...	2 2	182 ?	18·02	...
Cupar (Birkhill)	Mrs. Wedderburn	5	0 5	130	29·12	...
PERTH.						
Culross (West Grange)	J. J. Dalgleish, Esq.	...	0 2	116	27·77	132
Menteith (Cardross House)	Mr. Wyber	8	1 0	120	54·50	...
Aberfoyle	Glasgow Water Works	...	0 6	60	75·00	157
Ledard	„ „ „	...	0 6	1500	89·80	...
Dunblane (Kippenross)	J. Stirling, Esq.	...	0 4	100	32·80	...
Deanston	J. Finlay, Esq.	6	0 2	130	49·72	217
Loch Dhu	Glasgow Water Works	...	0 6	325	96·40	203

DIVISION XVI.—EAST MIDLAND COUNTIES—(*con.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell
			ft. in.	feet.	inches.	
PERTH—(*con.*)						
Loch Drunkie	Glasgow Water Works	...	0 6	420	72·50	...
,, Vennachar	,, ,, ,,	...	0 6	275	63·90	171
Bridge of Turk	,, ,, ,,	...	0 6	270	70·90	175
Loch Katrine (Tunnel Hill Top)	,, ,, ,,	...	0 6	830	89·80	...
Callander (Leny)	J. B. Hamilton, Esq.	3	0 6	345	75·40	...
Glen Gyle	Glasgow Water Works	...	0 3	380	100·70	197
Auchterarder House	Lieut.-Colonel Hunter	8	2 3	162	36·09	...
Crieff (Muthill)	Rev. A. J. T. Morris	3	0 10	247	56 20	229
Auchterarder (Colquhalzie House)	J. S. Hepburn, Esq.	8	0 6	100	42·56	...
,, (Trinity Gask)	Mr. R. Wylie	3	0 1	133	39·92	160
Perth Academy	Dr. Miller, F.R.S.E.	15	64 5	79	24·93	...
,, (Balthaycock)	Mr. Wedderspoon	7	3 0?	356	35·80	...
,, (Inchbank)	Dr. Miller, F.R.S.E.	10	1 6	20	34·96	...
,, (Early Bank)	Mr. Macglashan	12	0 3	64	44·89	143
Stanley	Rev. W. Mather	5	2 0	200	30·78	...
Blairgowrie (Rosemount)	R. Geekie, Esq.	...	6 1	300	26·47	145
Aberfeldy (Blackhill)	J. S. Hepburn, Esq.	3	0 4	823	41·27	...
,, (Bolfracks)	J. F. Wyllie, Esq.	12	0 6	360	44·30	...
*Logierait (Strath-tay)	Rev. G. D. R. Munro.	5	1 0	250	37·53	168
FORFAR.						
Dundee (Constitution Road)	‡ Dundee Water Work	...	0 0	116	28·79	...
Barry Village	Mr. J. Proctor	...	0 3	35	28·96	215
Craigton	Dundee Water Works	...	0 0	480	33·84	...
Kettins	Mr. J. Gibb	4	1 0	218	33·32	153
Hill Head	Dundee Water Works	...	0 3	560	34·06	...
Seichen	,, ,, ,,	...	0 3	550	34·20	...
Arbroath	A. Brown, Esq.	8	2 0	65	25·98	145
Montrose (Bridge Street)	D. Scott, Esq.	11	0 3	25	25·15	...
,, (Museum)	Mr. J. Campbell	7	29 0	37	22·10	140
,, (High Street)	Mr. W. Leighton	...	6 0	21	22·18	138

DIVISION XVII.—NORTH EASTERN COUNTIES.

KINCARDINE.							
Brechin (The Burn)	Lieut.-Col. McInroy	6	0	6	237	33·30	...
Fettercairn	Mr. A. C. Cameron	4	0	3	221	30 60	195
,, (Bogmuir)	R. Vallentine, Esq.	6	0	3	200	29·10	...
†Banchory House [Aberdeen]	A. Thompson, Esq.	6	0	4	99	32·50	237
Girdleness [Aberdeen]	Bd. of Northern Lights	...	4	7	86	22·50	...
ABERDEEN.							
Braemar	Mr. J. Aitken	8	0	9	1110	34·46	226
Ballater	J. W. Paterson, Esq.	5	0	9	656	34·81	200
Cromar (Coldstone)	Rev. J. G. Michie	5	4	0	680	31·70	...
*Aberdeen (Cuparstone)	Rev. A. Beverley	5	4	8	115	31·16	229
† ,, (Rose Street)	A. Cruickshank, Esq.	8	0	4	95	28·96	...
,, (Grammar School)	Rev. A. Beverley	5	63	10	161	24·54	...

‡ Information supplied by J. Duncan, Esq.

DIVISION XVII.—NORTH EASTERN COUNTIES—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches.	
ABERDEEN—*(con.)*						
Aberdeen (Military Hospital) ...	Sergt. Turner.....	8	0 6	37	24·01	...
„ „ „ ...	„ „	8	24 6	62	20·84	...
Midmar (Blackstock).....	Mr. J. Barrow	...	1 4	480	30·38	219
Cluny (Sauchen).....	Mr. G. Wilken	5	1 0	350 ?	30·60	179
Alford (Leochel-cushnie)	W. Bruce, Esq.	5	3 0	882	33·39	189
Strathdon (Castle Newe)	Mr. A. Walker	5	1 0	915	33·82	236
Inverury (Kenmay)	Rev. G. Peter.....	8	0 0	307	32·73	...
„ „	„ „ „	8	0 7	307	31·08	...
„ (Manse)	Rev. J. Davidson	9	0 1	210	35·82	...
Ellon (Tillydesk)	Mr. W. Hay	11	0 4	349	35·28	...
Peterhead (Buchanness)	Bd. of Northern Lights	...	3 4	35?	34·17	...
Turriff (New Byth).....	Mr. A. Henderson.....	5	0 3	391	36·89	200
New Pitsligo	Mr. D. Sturrock	3	0 3	501	37·40	223
Kinnairdhead	Bd. of Northern Lights	...	3 4	64?	22·76	...
BANFF.						
Gordon Castle.....	Mr. Webster	8	1 6	70	27·87	...
ELGIN OR MORAY.						
Craig Ellachie (Knockando Ho.)	W. E. Cattley, Esq. ...	5	0 9	...	39·88	...
Elgin (Ashgrove)	W. Topp, Esq.	8	0 3	33	26·48	208

DIVISION XVIII.—NORTH-WESTERN COUNTIES.

WEST ROSS.‡							
*Loch Alsh (Inverinate House) ...	Mrs. Matheson	5	3	0	150	74·49	158
*Applecross	Dr. Haynes	5	1	0	50	63·93	213
*Lochbroom	Mr. M. Macleary	...	0	8	47	63·06	253
Isle of Lewis (Stornoway)	Bd. of Northern Lights	...	3	4	31 ?	34·06	...
„ (Lewis Castle)	Mr. J. Pullinger	8	0	3	60	44·74	...
„ (Berneray).....	Mr. J. Macdonald	8	0	6	18	60·80	...
„ (Butt of Lewis)	Bd. of Northern Lights	...	3	6	...	45·40	...
EAST ROSS.‡							
*Dingwall	J. Boyd, Esq.	5	0	11	20 ?	29·52	197
Cromarty.....	Bd. of Northern Lights	...	3	4	28 ?	25·74	...
*Invergordon Castle.....	B. B. Æ. McLure, Esq.	...	3	0	20	25·27	166
Alness (Ardross Castle).....	Mrs. Matheson	5	1	0	450	40·09	226
*Tain (Fearn)	Mr. M. McLean.....	5	1	3	48	23·44	192
Tarbetness	Bd. of Northern Lights	...	3	4	61 ?	17·94	...
WEST INVERNESS.							
*Fort William	Rev. W. Simpson	5	0	8	20	82·49	254
*Loch Lochy (Clunes)	A. C. MacIntyre, Esq..	5	0	10	...	68·54	239
Loch Nevis (Inverie).....	Mr. N. Macdonald ...	...	3	0	30	78·00	...
Isle of Skye (Oronsay).....	Bd. of Northern Lights	...	0	6	15 ?	70·23	...
„ (Kyle Akin).....	„ „ „	...	0	2	3 ?	97·58	...
„ (Raasay)	Mr. T. Bunning.....	12	3	0	80	76·90	169
Isle of Skye (Portree)	Mr. J. Grant	3	0	4	60	97·17	249

‡ Including Cromarty.

DIVISION XVIII.—NORTH-EASTERN COUNTIES—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Rain Gauge. Height Above Ground.	Rain Gauge. Height Above Sea Level	Depth of Rain. 1866	Days on which ·01 or more fell.
			ft. in.	feet.	inches.	
WEST INVERNESS.—*(con.)*						
Isle of Skye (Portree)	Mr. J. Grant	5	0 4	60	88·36	249
,, (Waternish)	Rev. J. Lamont	5	0 4	150 ?	91·50	238
,, (Uig Lodge)	Mr. J. Grant	3	0 4	10	69·23	...
,, (Rona)	Bd. of Northern Lights	...	0 6	196 ?	38·88	...
Barrahead	,, ,, ,,	...	3 0	640 ?	35·61	...
S. Uist (Ushenish)	,, ,, ,,	...	0 4	157 ?	49·28	...
N. Uist (Monach)	,, ,, ,,	...	...	...	47·00	...
,, (Loch Maddy)	C. Shaw, Esq.	...	2 8	30 ?	36·45	...
Harris (Island Glass)	Bd. of Northern Lights	...	3 4	50 ?	30·10	...
EAST INVERNESS.						
*Laggan	Mr. A. McIntosh	5	0 9	1000 ?	46·59	207
Strath Errick (Farraline)	Capt. Fraser	4	0 6	700	42·60	...
*Beauley (Beaufort Castle)	Mr. W. Anderson ...	5	0 8	65	33·35	167
Inverness (High School)	J. Robertson, Esq. ...	5	1 3	15	27·93	208
,, (Culloden House)	A. Forbes, Esq.	...	3 0	104	26·10	170
Glen Strathfarrer	Mr. Fraser	8	2 0	...	69·74	261

DIVISION XIX.—NORTHERN COUNTIES.

SUTHERLAND.						
Invershin	Mr. G. Young	...	4 0	20	39·17	...
Golspie (Dunrobin Castle)	Mr. J. Mitchell	3	0 6	6	28·35	171
*Helmsdale	Mr. J. Campbell	5	1 0	34	33·63	228
Scourie	J. Simpson, Esq.	3	0 6	26	47 24	152
House of Tongue	J. Crawford, Esq.	4	0 1	33	48·10	255
Cape Wrath	Bd. of Northern Lights	...	3 6	355 ?	38·85	...
CAITHNESS.						
Nosshead	Bd. of Northern Lights	...	3 4	127 ?	26·28	...
Thurso (Holburnhead)	,, ,, ,,	...	0 4	60 ?	37·18	...
Dunnethead	,, ,, ,,	...	3 6	300 ?	29·72	...
Pentland Skerries	,, ,, ,,	...	3 3	72 ?	29·33	...
ORKNEY.						
Hoy (Melsetter)	J.G. Heddle, Esq.	...	0 4	55	36·19	...
,, (Sound, East)	Bd. of Northern Lights	...	3 4	27 ?	36·54	...
,, (,, West)	,, ,, ,,	...	...	37 ?	29·75	...
*Holme Manse	Rev. O. Scott	5	1 4	...	27·50	...
†Kirkwall	Mr. J. G. Iverach	3	0 4	8	22·73	204
Balfour Castle	D. Balfour, Esq.	3	3	50	33·00	...
†Sandwick (Lawn)	Rev. C. Clouston	...	2 0	78	41·55	217
Start Point, Sanda	Bd. of Northern Lights	...	0 6	29 ?	25·26	...
*Papa Westray	Rev. C. Clouston	5	...	...	37·31	...
North Ronaldsay	Bd. of Northern Lights	...	3 4	21 ?	28·18	...
SHETLAND.						
Sumburghead	Bd. of Northern Lights	...	3 4	265 ?	23·96	...
Bressay	,, ,, ,,	5	0 4	60	35·33	...
,, (Manse)	Rev. Z. M. Hamilton..	8	0 9	12	36·75	...

IRELAND.

DIVISION XX.—MUNSTER.

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground. ft.	in.	Height Above Sea Level feet.	Depth of Rain. 1866 inches.	Days on which ·01 or more fell.
CORK.							
Cork (Queen's College)	Professor England ...	10	6	0	65	42·06	219
„ (Royal Institution)	Dr. Caulfield	10	50	0	...	35·32	109
Fermoy	A. Campbell, Esq.	9	4	0	114	37·31	229
KERRY.							
Knightstown (Valentia)	The Knight of Kerry	8	2	0	30	54·12	227
Killarney	Mr. Spillane	5	...		...	54·31	232
WATERFORD.							
Waterford (Newtown)	Mr. R. J. Greer	..	4	0	60	36·05	224
„ (Portlaw)	C. Barker, Esq.	...	20	0	50	41·24	...
„ (Rathculliheen)		...	1	8	140	32·26	...
TIPPERARY.							
Clonmel (Glenam)	Miss Grubb	5	1	10	80	39·37	246
Carrick on Suir	J. E. Grubb, Esq.	5	2	7	28	38·84	256
Tipperary (Cordangan Manor)	L. Cust, Esq.	...	12	0	300?	36·07	...
„ (Ballytristeen)	Jasper Bolton, Esq. ...	5	1	1	350	41·09	232
*Borrisoleigh (Ballinlonty)	Mr. Kearns	5	1	0	...	41·95	136
CLARE.							
Killaloe	Rev. C. Mayne	10	0	5	123	51·78	240
*Ennis	Rev. S. Brakey	5	1	6	35	44·01	...

DIVISION XXI.—LEINSTER.

WEXFORD.							
Wexford (Reclaimed Lands)	C. W. Palliser, Esq. ...	10	0	2	1	31·27	...
New Ross (Rosbercon Cas.)	A. E. Graves, Esq. ...	8	2	3	45	29·98	...
Gorey (Courtown House)	Earl Courtown	5	3	0	80	34·39	182
KILKENNY.							
*Stoneyford (Inisnag)	Rev. J. Graves	...	1	0	196?	27·89	223
Inistogue (Woodstock)	Hon. W. F. Tighe	5	4	0	400	37·92	134
CARLOW.			...				
Bagnalstown (Fenagh)	R.C.Browne, Jun. Esq.	5	1	0	350?	31·70	226
Carlow (Browne's Hill)	„ „ „ „	5	1	0	291	30·82	199

DIVISION XXI.—LEINSTER—(*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which 01 or more fell.
			ft. in.	feet.	inches.	
QUEEN'S COUNTY.						
Portarlington	M. Hanlon, Esq.	5	1 1	236	30·74	245
KING'S COUNTY.						
Roscrea (Cangort Park)	H. B. Trench, Esq.	5	8 0	340	29·91	229
Parsonstown (Birr Castle)	Hon. R. Parsons	4	0 3	200	32·50	...
Tullamore	H. J. B. Kane, Esq.	10	3 0	235	26·36	...
WICKLOW.						
Carnew (Coollatine Park)	Mr. H. W. Cordle	5	1 0	427	37·06	203
Bray (Fassaroe)	E. Barrington, Esq.	10	5 0	250	38·21	204
KILDARE.						
Newbridge	T.B.HamiltonEsqRHA	6	13 7	...	23·15	212
DUBLIN.						
Black Rock	T. Bewley, Esq.	12	29 0	95	27·54	128
Monkstown	Arthur Pim, Esq.	10	0 6	100	28·05	218
„ „ „	„ „ „	5	40 0	145	21·51	217
„ „ „	„ „ „	10	90 0	200	16·80	...
Dublin (Phœnix Park)	Capt. Wilkinson, R.E.	31	10 0	169	26·61	192
„ (South Anne Street)	J. W Moore, Esq.	...	3 0	35	25·88	214
* Skerries	Rev. T. Greene	5	1 0	12	29·25	221
EAST MEATH.						
Moynalty	J. A. Farrell, Esq.	...	5 0	250	43·15	...

DIVISION XXII.—CONNAUGHT.

GALWAY.						
Gort (Cregg Park)	R. J. Lattey, Esq.	5	3 0	120	38·74	180
Galway (Queen's College)	Prof. Curtis, LL.D.	10	6 0	25	51·59	259
* Lough Corrib (Innishamboe)	J. D. D'Arcy, Esq.	5	1 0	35	53·23	...
ROSCOMMON.						
*Hollywell	H. Smyth, Esq.	5	2 6	...	38·40	202
SLIGO.						
*Buninnadden (Doo Castle)	Mr. D. O'Dowd	5	1 0	...	45·21	257
Collooney (Markree Observatory)	Col. Cooper, M.P.	...	16 3	145	41·79	220
Sligo (Haslewood)	Owen Wynne, Esq.	2	2 4	47	41·29	146

DIVISION XXIII.—ULSTER.

CAVAN.						
*Bawnboy (Owendoon)	G. H. L'Estrange, Esq.	5	1 3	218	49·87	253
*Belturbet (Red Hills)	Rev.E.Whyte Venables	5	0 9	...	39·10	229
FERMANAGH.						
Enniskillen (Florence Court)	Earl of Enniskillen	12	11 0	300	50·65	229
ARMAGH.						
Armagh Observatory	Rev.Dr.RobinsonF.R.S	10	1 5	208	34·10	211

DIVISION XXIII.—ULSTER—(*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge. Diameter.	Height Above Ground.	Height Above Sea Level	Depth of Rain. 1866	Days on which .01 or more fell.
			ft. in.	feet.	inches.	
DOWN.						
Milltown (Bann Res)	J. Smith, Jun., Esq. C.E.	8	1 0	440	54·60	155
Banbridge (Milltown)	„ „ „	8	0 8	200	28·23	208
„ „	„ „ „	12	40 0	240	24·24	...
Ardglass Castle	A De Vere Beauclerk Esq	6	1 0	50	34·34	...
Waringstown	Capt. Waring	8	0 4	190	31·46	221
„	„ „	6	1 6	187	30·60	...
„	„ „	2	0 4	190	31·75	...
ANTRIM.						
†Belfast (Queen's College)	Mr. W. Taylor	11	9 3	58	35·56	204
† „ (Linen Hall)	J. Stephens, Esq.	11	4 0	12	39·54	217
„ (Old Park)	W. Girdwood, Esq	...	4 0	224	44·84	242
„ (Antrim Road)	G. R. Clarke, Esq	7	7 0	145	35·23	187
*Antrim	Rev. J. H. Orr	5	1 0	150	33·02	204
Ballymoney	Rev. T. Knox	5	7 0	...	40·92	...
LONDONDERRY.						
*Garvagh (Moneydig)	H. R. Morrison, Esq.	5	1 1	121	41·75	232
Londonderry	D. Watt, Esq.	...	0 6	150	41·97	...
„ „ „	Rev. F. Smith	12	8 0	90	44·59	231
„ (Literary Institution)	Dr. Cuthbert	12	50 6	78	39·94	228
Bellarena	Sir F. Heygate, Bt., M.P.	5	1 0	20	38·50	253
TYRONE.						
Strabane (Leckpatrick)	Rev. C. Maxwell	8	0 5	260	42·64	251
DONEGAL.						
*Letterkenny	Rev. Dr. Kingsmill	5	0 6	108	61·92	...

G. J. S.

FINANCIAL.

I HAVE been told over and over again, "That rainfall work of yours will never pay;" and I confess that seven years' experience supports the assertion; but I am not going either to despair or to abandon it. On the contrary, my faith is quite unshaken, though I admit "something must be done." The gross receipts in 1866 were £365 : 5 : 0; the expenditure was £318 : 7 : 0; there was, therefore, only a surplus of £46 : 18 : 0 left for myself.

Far be it from me to be ungrateful for voluntary contributions amounting to nearly £400; on the contrary, I value highly this substantial indication of interest in rainfall investigations, but the growth of the work is so rapid that, in spite of the utmost economy in administering the funds, the result is as above stated. Therefore we must aim at either a large increase in the funds, or a decrease in the expenditure. It seems to me that the former would be easily practicable if *all* the observers who *can* pay for their books would do so. Dependent as we must be on them for observations, it would be unreasonable to withhold the acknowledgment of a copy of those tables "which without them could not be." Still I would suggest that even by small contributions all should help to demonstrate the power of numbers, for even a few shillings each from about 700 persons, would vastly alter the appearance of the balance sheet.

I have great pleasure in appending, as last year, a list of contributors of £1 and upwards towards the expenses of the present year; need I express my hearty thanks to one and all of them, and not to them only, but also to those who, of lesser resources, have still done what they could.

	£	s.	d.
Aire & Calder Navigation Co.	1	6	0
Appach, R., Esq.	1	0	0
Assheton, R., Esq.	1	0	0
Atkinson, A. O., Esq.....	1	0	0
Backhouse, W. Esq.	1	0	0
Balme, E. B. W., Esq.	1	1	0
Barham, Dr. J. F.	1	0	0
Barker, Dr. S.	1	5	0
Barrington, E., Esq.	1	0	0
Baverstock, J. H., Esq.....	1	0	0
Bayning, The Lady.....	1	0	0
Beverley, The Rev. A.....	1	0	0
Blake, W., Esq.	1	0	0
Bland, W., Esq.	1	0	0
Box, A. M., Esq	1	0	0
Bridgeman, The Rev. J. R. O.	1	1	0
Brooke, The Rev. J.	1	0	0
Brown, A. L. D., Esq.....	1	0	0
Brown, Captain	1	0	0
Brown, T. C. Esq.	1	0	0
Bumpstead, The Rev. T. J...	1	0	0
Burlingham, R., Esq.....	1	1	0
Campbell, C., Esq.	1	0	0
Cater, C. O. F., Esq.	1	10	0
Chrimes, R., Esq.	6	0	0
Clarke, Sir James, Bart. F.R.S.	1	0	0
Clegram, W. B., Esq.....	1	1	0
Colquhoun, J. C., Esq.	1	0	0

	£	s.	d.
Coode, W., Esq.	1	0	0
Cooke, The Rev. R. B.	1	0	0
Cooper, Colonel	1	2	0
Cowley, P., Esq.	1	5	6
Darby, C., Esq.	1	0	0
Dartnell, G. R., Esq.	1	0	0
Davis, T. H., Esq.	1	0	0
Devas, W., Esq.	1	0	0
Dines, G., Esq.	1	0	0
Divett, J. Esq.	1	0	0
Drummond, General	1	10	0
Dymond, E. E., Esq.	1	0	0
Estlin, J. P., Esq.	1	1	0
Evans, F. G., Esq.	1	6	0
Ffolkes, The Rev. H.	1	0	0
Field, R., Esq.	1	11	0
Fielden, J. Esq.	1	0	0
Filliter, E., Esq., C.E.	1	11	0
Finlay, J., Esq. F.R.S.	1	0	0
Fletcher, I., Esq., F.R.S.	1	11	0
Fuller, F., Esq.	1	1	0
Gillett, Rev. G. E.	1	0	0
Gossett, Rev. I. H.	1	5	0
Gott, C., Esq.	1	1	0
Hadden, J. A., Esq.	1	0	0
Hare, C., Esq.	1	0	0
Harris, W. J., Esq.	1	1	0
Hassard, Dr.	1	0	0
Herbert, J. M., Esq.	1	0	0
Heygate, Sir F. W., Bart. M.P.	1	0	6
Hill, Rev. E.	1	5	6
Hills, H., Esq.	1	11	0
Hony, The Ven. Archdeacon	1	0	0
Hood, Hon. Major-General	1	0	0
Hopkins, T., Esq.	1	10	6
Howard, N. T., Esq.	5	10	0
Howman, Rev. E. J.	1	0	0
Hull, Rev. J.	1	0	0
Hunter, J. L., Esq., C.E.	1	1	0
Ingram, The Rev. H.	1	10	0
Jenkin, S. W., Esq., C.E.	1	0	0
Jones, Mrs	1	0	0
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